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ABSTRACT

This report documents a 2-year research and development project aimed at determining the effects of interdisciplinary teamed instruction (ITI) on teaching and learning. The study also sought to validate the effectiveness of a professional development model that would facilitate development, implementation, and evaluation of ITI. Through summer institutes and on-site workshops, project staff provided training, resources, and ongoing technical assistance to teams of teachers and administrators from four rural Virginia secondary schools. These teams designed and tested integrated curricula that incorporated learning activities and alternative forms of assessment; engaged in collaborative action research to determine the effectiveness of units; and redesigned units using data-based feedback from students, teachers, parents, and supervisors. Program evaluation included questionnaire surveys, reviews of records and documents, institute and workshop evaluation forms, and individual and focus group interviews. Program participants reported positive effects of ITI on teaching at the four sites, particularly in terms of professional growth, reflective practice, and collegial interaction; reported positive effects of ITI on student attitudes and performance, particularly for lower-achieving students; rated the project's professional development model as highly effective; expressed interest in using action research, but indicated a need for further training in this area; and described several conditions that enhanced successful ITI implementation, most notably, administrator commitment and support. Appendices include team reports from the four rural schools, teacher and administrator questionnaires, nonparticipant questionnaire, individual and focus group interview guide, and completed evaluation standards checklists. (LP)

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Interdisciplinary Teamed Instruction: Development and Pilot Test

by

Rebecca C. Burns

August 1994

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Interdisciplinary Teamed Instruction: Development and Pilot Test

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August 1994

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The teachers and administrators from the four pilot schools deserve the most credit. Their commitment to implementing and evaluating ITI made this project possible.

Rebecca Burns

EXECUTIVE SUMMARY

AEL's Rural Excel program conducted a two-year research and development project (1) to determine the effects of Interdisciplinary Teamed Instruction (ITI) on teaching and learning and (2) to validate the effectiveness of a particular professional development model that would facilitate development, implementation, and evaluation of ITI. Through summer institutes and on-site workshops, staff provided training, resources, and ongoing technical assistance to teams of teachers and administrators in four rural Virginia secondary schools. These teams designed and tested integrated curricula that incorporate thoughtful learning activities and alternative forms of assessment, engaged in collaborative action research to determine the effectiveness of the units, and redesigned the units using data-based feedback from students, teachers, parents, and supervisors.

Project activities took place between July 1992 and June 1994. With the collaboration of approximately 40 participants, project staff (1) documented the processes used by the school teams as they developed, implemented, and evaluated integrated units of study; and (2) evaluated the effectiveness of a professional development model that included two residential summer institutes for all participants, four workshops yearly at each of the schools, and collaborative action research conducted by each team.

Evaluation data indicate that project staff and participants worked effectively to complete tasks and ensure progress toward each of the project's objectives. Substantive findings include the following:

- Participants reported positive effects of ITI on teaching at the four sites, particularly in terms of professional growth, reflective practice, and collegial interaction.

- Participants observed positive effects of ITI on student attitudes and performance, particularly for lower-achieving students.
- Teachers and administrators rated the project's professional development model as highly effective.
- Teachers and administrators expressed interest in using action research but indicated a need for training in the processes and applications.
- Participants described several conditions that enhance successful ITI implementation, most notably, administrator commitment and support.
- Evaluation data indicate that ITI is a complex innovation that may be enhanced by assistance from a trained, external facilitator.

The project findings support other research that purports the positive effects of curriculum integration and teamed instruction on learning and teaching. Further, the results validate current theory about educational change and provide new knowledge about the processes and conditions that enable educators to work collaboratively, integrate curricula, and evaluate their efforts. Finally, the study confirms the rationale that effective professional development is focused on both content and process, sustained over time, and concerned with building local capacity.

The use of ITI in middle and secondary schools is recommended. However, before ITI is implemented, school faculty and representatives from the school community should (1) learn about ITI concepts, processes, and conditions; and (2) determine their readiness and desire to

begin ITI. Also, AEL should develop print and human resources to support ITI implementation. Finally, this report recommends that further studies be undertaken to determine (1) the optimal administrator role in ITI implementation; (2) the most effective ways to assist teachers with action research; and (3) the most effective ITI team configuration.

SECTION I: INTRODUCTION

Rationale

The interest in and need for curriculum reform have been central to the national school restructuring movement. The knowledge explosion in each of the academic disciplines, fragmentation of the school day, new evidence about brain function, and growing numbers of disengaged learners have intensified the need for curriculum integration at all educational levels.

Efforts to integrate the curriculum have a long history. Some studies have traced the origins of curriculum integration in the United States to the 1800s (Vars, 1991). Other studies trace its roots to the progressive education movement of the 1920s that advocated integration through themes to increase content relevance for students (Beane, 1991; Vars, 1991). During the 1960s, there was a shift to discipline-oriented curriculum based on Bruner's theory that the disciplines provided structure for storing and retrieving knowledge. However, in the 1980s and 1990s, research on how people learn indicates that the brain searches for patterns and interconnections to construct meaning (Caine & Caine, 1991). So, if humans learn through connection-making, it makes sense to teach by connecting, not segmenting, knowledge.

Integrated curriculum is a holistic approach to learning that stresses connections and relationships rather than delineations across the disciplines. It is a tool for building bridges instead of boundaries between specific bodies of knowledge. Contrary to traditional discipline-based curriculum that focuses on content objectives, integrated curriculum is concept driven and focuses on performance expectations that describe the generic knowledge, skills, and habits of mind that students are expected to obtain. An integrated curriculum focuses on students' needs and interests.

Equally important to the need to change *what* is taught is the need to change *how* it is taught. Psychologists, philosophers, researchers, and educators agree that effective learning means thoughtful learning--learning that enables students to construct a range of "understanding performances" around a topic (Perkins, 1991). These "understanding performances" require students to demonstrate and use what they know before an audience, or apply it in a real-world context.

Integrated curriculum may be organized around themes/topics, metacognitive skills, or real-life experiences. Its development is frequently evolutionary as teachers usually begin integration with natural connections that emerge in the disciplines. As teachers gradually move away from a discipline orientation toward a focus on essential and overlapping skills and concepts, curriculum becomes more fully integrated. At the highest level of integration, the essential knowledge and skills of the various disciplines are repositioned in the context of real-world issues and concerns identified by students and teachers.

Although individual teachers in self-contained elementary classrooms can use any of the integrated curriculum frameworks, at the middle and secondary levels a team approach to instruction is necessary to achieve integration. There is considerable literature (Erb, 1987; Vars. 1987; Mac Iver, 1990; Scarr, 1992; Maeroff, 1993) that supports the positive effects of teaming on students and teachers. For the most part, however, in practice teaming has been used as a method to solve student behavioral problems, deliver individualized instruction, or provide advisors/mentors for students, rather than for instructional delivery. Also, teams have been utilized primarily in the middle school and have remained virtually nonexistent in the high school. A range of research (Jacobs, 1989; Caine & Caine, 1991; Murphy, 1991; Brooks &

Brooks, 1993) supports the design of a "connected curriculum" that emphasizes transfer of knowledge across disciplines and to the real world--a curriculum that engages students and encourages connection making. Although a great deal of philosophical and theoretical literature exists to support curriculum integration and teamed instruction, little applied research has been conducted to validate their effectiveness in middle and secondary schools.

Similarly, several researchers (Brazee & Capuletti, 1994; Burns, in press; Drake, 1993; Fogarty, 1991; Jacobs, 1989) have described a continuum of curriculum integration models. However, teachers need benchmarks by which to chart their progress through the stages toward full integration. Furthermore, there is a need to identify the processes that enable or hinder teachers' progress toward full curriculum integration. Finally, teachers should be involved in generating the knowledge that defines and informs their efforts to achieve curriculum integration. The Interdisciplinary Teamed Instruction (ITI) project sought validation of current thinking and new knowledge about the processes that enable educators to put curriculum integration theory into practice and to validate their efforts.

Purposes and Audience of Project Report

The purposes of this report are threefold: (1) to describe the developmental activities and procedures of the project; (2) to discuss the effectiveness of a professional development model; and (3) to report the effects of ITI on teaching and learning.

The report has several primary audiences: (1) project staff and participants; (2) the program monitor from the Office of Educational Research and Improvement (OERI); (3) state departments of education personnel; (4) local education leaders; (5) curriculum directors; and (6)

others responsible for developing and monitoring curriculum, instruction, and professional development. Curriculum specialists in higher education and researchers in middle and secondary education (and perhaps other areas) also may find the report useful.

SECTION II: PROJECT DESCRIPTION

In May 1992, Rural Excel program staff proposed a two-year project in four rural Virginia secondary schools to provide training, resources, and ongoing technical assistance to interdisciplinary teams of teachers and administrators who would design integrated curricula that incorporate thoughtful learning activities and alternative forms of assessment. Initially, the project was designed to meet needs expressed by the Virginia Department of Education (VDE) to prepare a cadre of educators who could assist others in developing curriculum and instruction geared to the Virginia Common Core of Learning. Centered on issues, problems, themes, and decisions, the Common Core of Learning was designed to minimize subject boundaries, emphasize interrelationships among disciplines, and support learning in new ways that reflect the world beyond school. It incorporated a holistic view of curriculum, instruction, and assessment.

Although circumstances in the VDE prevented implementation of the Common Core of Learning, the ITI project was successfully carried out and completed in June 1994, as planned.

Research Methodology

The research methodology used by school teams in the ITI project was collaborative action research (Holly, 1991; Sagor, 1992). This approach is described by Holly (1991) as action led and the research is focused on new, as opposed to old or previous action. Interdisciplinary teams of teachers and administrators were expected to design integrated curricular units; teach them to their students; evaluate the effectiveness of the units; and redesign the units based on feedback from students, teachers, administrators, parents, and others. During the project, Rural

Excel staff facilitated interaction, teamwork, and collegiality among the school teams; articulation and reinforcement of a scope and sequence for integrated teaching; and evaluation of the long-term benefits of the instructional innovations for students.

As she worked with the four ITI teams during the two-year ITI project, the director engaged in ethnographic research based on the definition provided by Borg and Gall (1989): "The process of providing scientific descriptions of educational systems, processes, and phenomena within their specific contexts."

Purposes and Implementation Strategies (See Figure 1)

The ITI project had two purposes:

1. to document the processes used by the school teams as they developed integrated units of study, implemented them with students through interdisciplinary teamed instruction, and used action research to evaluate their effectiveness; and
2. to validate the effectiveness of a professional development model that is based on a sound rationale.

The project had five implementation strategies:

1. to provide training, resources, and support to assist participants in the development of integrated curriculum, effective learning strategies, and alternative forms of assessment;
2. to support and assist educational innovation and collegial exchange;
3. to involve educators in action research;

4. to evaluate the effects of interdisciplinary teamed instruction on teaching and learning; and
5. to develop human resources and print materials that will be valuable to others who will design and implement integrated approaches to teaching and learning.

THREE COMPONENTS				
SUMMER INSTITUTES		ONSITE WORKSHOPS	ACTION RESEARCH	
IMPLEMENTATION STRATEGIES				
Provide training, resources, and support to assist in the development of integrated curriculum, effective learning strategies, and alternative forms of assessment.	Support and assist educational innovation and collegial exchange.	Involve educators in action research.	Evaluate effects of interdisciplinary teamed instruction on teaching and learning.	Develop human resources and print materials that will be valuable to others who will design and implement integrated approaches to teaching and learning.

Figure 1. ITI Project Model

Identification and Selection of Test Sites

Information on the project and an application procedure were shared with participants in "Linking the Disciplines: A Holistic Approach to Curriculum Design," an AEL School Excellence workshop training-for-trainers event held April 30-May 1, 1992, in Salem, VA.

Several criteria were used for site selection. The superintendent of each project site was required to support the school's selection and to provide eight days of release time for project participants in both 1992-93 and 1993-94 as well as reimbursement for their travel, food, and lodging for two summer institutes. Additionally, schools were asked to submit a letter of application outlining their goals for participation, their history with teaming and curriculum integration, and their planned team membership. Teams were to include at least one administrator and four to nine teachers representing various disciplines.

In May 1992, four schools were selected for the project: Auburn Middle and High School (Montgomery County), Buffalo Gap High School (Augusta County), Nelson High School (Nelson County), and Woodstock Middle School (Shenandoah County).

Description of School Teams

Auburn Middle and High School, located ten miles south of Christiansburg in rural southwest Virginia, houses approximately 500 students in grades 6-12. Founded in 1873 as Auburn Academy, and occupying the present campus since 1938, the school has a long history in its predominantly agricultural community.

The Auburn ITI team included two administrators and seven teachers, who represented most grade levels 6-12 and the subject areas of math, science, English, and social studies. This composition might be described as a "leadership" team, as opposed to an "instructional" team who actually teach together. Several of the teachers taught at both the middle and high school

levels. Although few conditions or structures were in place at Auburn to support teaming, such as common planning time for team members or block-of-time scheduling, some of the team members had worked together previously on interdisciplinary units. For example, two sixth grade teachers had coordinated instruction, and two high school teachers had planned units together.

Buffalo Gap High School, located in western Augusta County, Virginia, near the town of Staunton, serves approximately 500 students in grades 9-12. The school community is primarily agricultural and has a relatively conservative, stable, and homogeneous population.

The Buffalo Gap team was an experienced grade-level instructional team. For one year prior to their joining the ITI project, seven ninth grade teachers had participated on a three-subject interdisciplinary instructional team. Two teachers each of English, earth science, and world geography, and an additional English teacher who served as a resource person to the two instructional teams, had designed the S.E.A.L. (Subject Enhanced Approach to Learning) project. The teachers described the program as "enhancing each other's subject area and integrating content where there is natural overlap." For the most part, the morning- and afternoon-block teams taught the same units, but not concurrently and not necessarily with the same strategies, materials, or assessments.

A number of supports for ITI were in place at Buffalo Gap. All team members shared daily planning time and had an additional individual planning period. The assistant principal met weekly with the team to provide assistance, guidance, and support. Also, the principal had modified the facility to provide large group activity space and to place team members in close proximity.

Six teachers and two administrators composed Buffalo Gap's first summer institute ITI team. However, only three of the team teachers served on the actual S.E.A.L., or ITI, team. The other four ITI team members joined the project at the first onsite workshop, and the additional three institute-team members did not continue participation in the project.

Nelson High School, the only high school in Nelson County, is located in Lovingston, VA, about halfway between Charlottesville and Lynchburg. It serves a student body of approximately 650 in grades 9-12 who come from small rural communities and farms.

Three members of Nelson's four-member interdisciplinary core team, representing science, social studies, and English, attended the first summer institute. In addition, a humanities teacher, who did not continue in the project, and the school's assistant principal for instruction participated in the institute. The fourth ITI instructional team member, a math teacher, was hired in September 1992 and participated for the remainder of the project.

Before joining the project, the Nelson team had envisioned a two-year core curriculum for grades 9 and 10 focusing on world cultures and integrating English, social studies, science, and mathematics. However, none of the teachers had experience with teamed instruction. To support the ITI effort, the school administration had allotted the team four periods per day of common planning time to write the curriculum during the 1992-93 school year, with implementation to begin in 1993-94 for some 60-70 ninth grade students who would choose to participate in the school-within-a-school integrated program.

Woodstock Middle School, located in Woodstock, VA, in the heart of the Shenandoah Valley, houses some 250 students in grades 7 and 8. In the fall of 1994, Woodstock and

Edinburg Middle School (housing grades 5-6) will consolidate to become Peter Muhlenburg Middle School, a new, state-of-the-art facility.

In preparation for the consolidation, the seven-member Woodstock team entered the ITI project with a three-year plan in place for accomplishing goals related to teaming, curriculum integration, and other developmentally appropriate practices for the middle school. Flexible scheduling and teaming for both core and related arts teachers were in place. Each of the school's four instructional teams, two at each grade level, had daily individual and common planning time. Each core team had designed and taught at least one interdisciplinary unit during the 1991-92 school year.

The experienced, goal-oriented Woodstock team was composed of six teachers and the principal. Teachers represented the subject areas of social studies, language arts, and related arts (music, agriculture) and served as a "leadership" team for schoolwide ITI implementation.

Project Components

The theoretical base for the components of the ITI project's professional development model is found in the work of several researchers, primarily Fullan & Miles (1992), Maeroff (1993) and Sagor (1992). It can be summarized in the following tenets: (1) those who engage in curriculum restructuring require a great deal of professional support; (2) a knowledgeable facilitator from outside the school can provide ongoing coaching, training, and capacity-building; (3) the most effective professional development for school faculties is strong, sustained over time, closely responsive to local needs, and focused on building local capacity; (4) teams of

teachers and principals can function as catalysts for change within their schools; (5) the best environment for developing team capacity is a summer residential academy (institute) away from the hubbub of school; and (6) teachers should be involved in generating the knowledge that informs their practice.

Hinged on these theoretical pinnings, the two-year ITI professional development project utilized: (1) summer institutes designed to build team capacity and provide training and resources related to implementing integrated curriculum; (2) on-site workshops to provide sustained assistance to each team; and (3) teacher involvement in collaborative action research to determine the effects of ITI on teaching and learning at the individual school sites (see Figure 1).

Summer institutes. "Successful team building at institutes is a careful blend of content and process, ensuring that a team has some substantial ideas with which to work as well as the skills to collaborate and to involve others" (Maeroff, 1993, p. 20). Following this belief, Rural Excel staff organized summer institutes that would provide grounding in the content and process of ITI, activities to promote team building, and opportunities for team reflection and planning.

One-week institutes, planned and facilitated by Rural Excel staff and consultants, were held in July 1992 and July 1993. Teams from each project site and representatives from the VDE attended. Goals of the institutes were: (1) to provide information and resources to assist teams in designing, implementing, and evaluating integrated curriculum; (2) to enhance team-building skills and processes; and (3) to encourage information sharing and networking among the four teams.

On-site workshops. "There can be no blueprint for change. Rather, what is needed is a guided journey" (Fullan & Miles, 1992, p. 749). To provide a "guided journey" toward

curriculum integration for the project schools, Rural Excel staff recognized the need for ongoing technical assistance and leadership by an external change facilitator. The project director served in this capacity.

During each of the project's two years, the project director conducted four workshops at each school. The purposes of the first-year workshops were to offer additional ITI training and resources requested by participants and to establish an atmosphere supportive of experimentation, reflection, and collegial exchange. During the project's second year, workshop activities tended to focus more on refining integrated units of study and collecting and analyzing student data.

Action research. Because teachers need to be involved in generating knowledge that informs their practice, Rural Excel staff incorporated action research into the project's professional development model. Action research is a collaborative activity that brings groups of practitioners (in this case school ITI teams) together to study their practice for the purpose of engaging in action for improvement. The four phases of action research are planning, action, observation, and reflection.

The ITI project engaged the school teams in collaborative action research to determine the effects of interdisciplinary teamed instruction on teaching and learning. During the project's first year, teams planned and implemented integrated units of study. As they taught the units and immediately after their completion, teams solicited feedback from a number of sources (students, team members, administrators, parents, and others) to determine each unit's strengths and weaknesses. After reflecting on their data, team members redesigned units to be retested during

year two. During the final months of the project, each team completed a report of the findings of their action research (see Appendices A-D).

Each of the project components is described in greater detail in the following two sections of this report.

SECTION III: YEAR ONE

Activities and Procedures

Project staff facilitated a summer institute for all project participants, four onsite workshops in each of the project sites, and the development of a collaborative action research plan for each team during year one. In addition, project staff provided technical assistance through mailings, phone calls, and the Virginia Public Education Network.

Summer Institute

The first activity of the ITI project was a summer institute held July 20-24, 1992, at the Boar's Head Inn in Charlottesville, VA. This location was selected for two reasons: (1) it is a beautiful site that offers comfort, relaxation, and invigoration; and (2) there are various historic and cultural attractions in the area. Project staff felt that this site would maximize opportunities for team building and for utilizing the cultural richness of the area for developing integrated units of study.

Project staff and consultants planned a five-day agenda that would actively involve participants and build on their experience and expertise. In June 1992, after school teams were identified, a School Team Survey was mailed to each institute participant. To assist staff in planning an institute program that would best meet participant needs, and to help identify interests and expertise of the teachers and administrators, the survey asked them to: (1) select, from a list of 10 topics related to ITI, three interest areas for concurrent sessions; (2) indicate if they could bring copies of interdisciplinary units, vision statements, master schedules, or other

documents related to ITI to share with others; and (3) indicate any special programs in their school (e.g., community service, advisor/advisee, peer tutoring) that they could discuss with other participants. Staff used information gathered from the survey to design lunchtime round-table discussions and concurrent early morning and evening special-interest sessions led by experts from each school, and to identify the kinds of resource/print materials that would be most helpful to participants.

To set the context for the institute, staff mailed advance copies of two readings that reflect the philosophy of integration and a bibliography of additional readings related to ITI. Participants were asked to read the articles provided and to prepare comments and questions for "daily team reflections" during the institute.

The institute leaders planned a constructivist agenda to help participants internalize and transform new information about curriculum integration (Brooks & Brooks, 1993). Because teams would design learning activities and assessments for integrated curriculum units and share them with others, staff asked each team to bring a computer and printer as well as any other resources (e.g., textbooks, learning materials) that would be useful in designing and duplicating their unit plans. Finally, because one team activity was built around the Charlottesville community, staff recommended that each team bring a camera or camcorder to help illustrate their "field trip."

Objectives for the institute included setting a context for curriculum integration, designing integrated units of study, developing team-building skills, learning new ways to assess student performance, and developing a strategy for implementing and evaluating interdisciplinary

teamed instruction at each school site. Activities on each of the five days focused on one of the objectives (e.g., day one = setting a context for integration, day three = team-building skills). All activities were designed to model effective instructional techniques, build team capacity, and encourage reflection and discussion. For example, participants utilized cooperative learning strategies such as Jigsaw to learn more about models and promising practices for ITI; developed, displayed, and evaluated an interdisciplinary activity; and engaged in daily team meetings to reflect on their work and to provide feedback to institute staff.

Staff planned each day's activities in three segments (see Figure 2). During the morning segment, staff introduced or demonstrated ITI concepts or related information. For example, on day one, which focused on setting the context for ITI, staff from the VDE provided information on the Common Core of Learning. On day two, staff engaged participants in an activity that introduced models for designing integrated units of study. Most of the materials and activities used during the morning sessions were included in "Linking the Disciplines: A Holistic Approach to Curriculum Design," a workshop package developed by the project director and provided for each participant.

In the afternoon segment each day, teams applied concepts learned in the morning session. For instance, after examining models for unit design, teams went into the Charlottesville area to gather materials and visit places of interest that could be incorporated into an interdisciplinary field trip activity for their students.

The evening sessions offered opportunities to demonstrate and display team-developed materials or to acquire new information in special interest areas. On one evening, teams displayed and discussed their "Charlottesville" units. During another evening session, the

Interdisciplinary Teamed Instruction Institute Schedule
July 20 — 24, 1992

Monday	Tuesday	Wednesday	Thursday	Friday
<u>Introduction and Context</u> 11:00 - 12:00 Registration	<u>Focus on Curriculum Integration</u> 9:00 - 12:00 Models and Options for Linking the Disciplines	<u>Focus on Team Building</u> 9:00 - 12:00 Multi-media Resources for Curriculum Integration	<u>Focus on Assessing Learner Performance</u> 9:00 - 12:00 Integrating Curriculum, Instruction and Assessment	<u>Culmination, Reflection, and Next Steps</u> 9:00 - 12:00 Bringing It All Back Home Recognition and Evaluation
12:00 - 1:00 AEL lunch	12:00 - 1:00 AEL lunch	12:00 - 1:00 AEL lunch	12:00 - 1:00 AEL lunch	
1:15 - 5:00 Team Introductions Common Core of Learning Interdisciplinary Scavenger Hunt	1:00 - 4:45 Interdisciplinary Team Planning: Creating a Charlottesville Field Trip	1:15 - 4:45 Integrating Teaching Styles and Learning Styles Assessing Teamwork	1:15 - 4:00 Product Development in Content Working Groups	
	4:45 - 5:00 Team Reflections	4:45 - 5:00 Team Reflections	4:00 - 5:00 Team Sharing and Reflections	
5:00 - 6:30 AEL Cookout	5:00 - 7:00 Dinner	5:00 - 7:00 Dinner	5:30 - 7:00 Dinner	
7:00 - 8:15 Conceptualizing Interdisciplinary Instruction	7:00 - 9:00 School Teams Complete and Display Units	7:00 - 8:30 Concurrent Sessions: Programs that Promote Multidisciplinary Learning	7:00 - 8:30 Assessment Demonstrations	
8:15 - 8:30 Team Reflections		(Interest Groups)		

Figure 2. Year One Summer Institute Agenda

Virginia National Diffusion Network (NDN) coordinator provided information on interdisciplinary programs available through NDN; while on a third evening, staff or participants led concurrent sessions on topics of interest such as service-learning or block scheduling.

On the final morning of the institute, each school team developed an action plan for implementing ITI during the coming year. The project director used these plans to assess individual team needs and to plan for the first-year on-site workshops.

Staff also administered to participants a Stages of Concern Questionnaire (SoC), an instrument that measures seven stages of concern experienced by teachers in a change process (Hord, 1990), at the beginning and end of the institute. The project director reviewed the SoC data from each site identified site-specific concerns, and planned first-year workshop activities accordingly.

On-site Workshops

The project director conducted four on-site workshops at each of the four ITI schools during the project's first year. She employed a similar procedure for planning each of the workshops. After reviewing each team's action plan and individual needs (stated in the plan, identified by SoC, or reported by phone or mail), the project director prepared and mailed copies of a proposed workshop agenda to team members. Each workshop agenda included goals, tasks, and, in some cases, a daily schedule. Frequently, the agenda included several alternative activities, and team members were asked to discuss and select goals and/or tasks that best met their needs. In each mailing, the project director asked teams to discuss the agenda and to designate one team member to respond to her by phone or mail to finalize workshop goals. Generally, it was an administrator who provided the team's response.

First site visit. The two-day agenda for the first on-site workshops, held during September 1992, was the same at each of the four schools. Based on team action plans and on subsequent discussions by telephone with team representatives, the project director identified the following three goals: (1) to clarify team goals, activities, and needs for technical assistance during the first year; (2) to design a technical assistance plan and timeline for subsequent workshops; and (3) to develop an action research plan--based on a model of plan, act, observe, reflect-- for assessing the effects of ITI on teaching and learning.

During the first day of each initial workshop, the team defined and refined an ITI model for their site. Activities included developing a vision statement for ITI; identifying specific objectives and a timeline for implementation and evaluation of units; outlining a unit, including teaching strategies, assessments, and criteria for success; and determining individual team members' responsibilities.

During day two of the first workshop, team members designed an action research plan that included methods for evaluating unit effectiveness, methods for collecting data and reflecting on what happens with students, and procedures for monitoring team process and progress toward goals. At the end of the day, each team outlined their technical assistance needs. At some sites this included plans for future workshops; at others it involved requests for materials and information on ITI to be sent by mail to the site.

At the conclusion of each workshop, the project director solicited informal feedback from the team. She asked team members to respond individually in writing to two questions: (1) What was particularly helpful about the workshop?; and (2) What would you wish for next

time? This method, or a similar one, for soliciting informal feedback on workshop effectiveness and monitoring team needs was used at the conclusion of all subsequent workshops.

For the first workshop, teams indicated they liked the processes and structures used in the workshop. Specifically, across teams, individuals liked:

- "brainstorming project ideas";
- "candor and openness of the meeting";
- "unit organizational methods";
- "the succinct focus on our program";
- "generating a timeline and unit ideas";
- "developing evaluation tools";
- "a step-by-step process";
- "defining outcomes"; and
- "time to plan a unit."

These "likes" served as guidelines for the project director in planning future workshops. Specifically, they would be outcome-based, focused on identified team needs, process-oriented, and collaborative.

The needs for "next time" varied from site to site because each site had a unique ITI model and differing needs for technical assistance. The following identified needs for future workshops illustrate the diversity of the four teams:

- "more about scheduling options for our school";
- "more time to work on units";

- "determining our facility needs for implementing ITI"; and
- "work on team process."

Subsequent site visits. Because the structure and function of the ITI teams varied across schools, and because each team had expressed specific needs for technical assistance, the project director proposed alternative agendas for the remaining three workshops at each site. Some of the teams chose to use a portion of their eight release days for the project to visit other schools, work on unit planning, or attend a conference. Therefore, teams had the option of selecting a one- or two-day on-site workshop format. The one-day format generally focused on one or more of the following activities: (1) planning an integrated unit; (2) analyzing student/teacher data and redesigning a unit; (3) learning more about a topic such as block scheduling, problem-solving skills, or authentic assessment; or (4) a combination of two of these activities. These meetings frequently were held at a location other than school.

The two-day agenda was sometimes an extended version of the one-day plan. In other instances teams requested that the project director work with them on one day and spend the other day doing one or more of the following activities: (1) visit classes, observe, interview students and teachers to collect data for team discussion or application to their action research; (2) conduct a faculty workshop on a topic related to ITI; (3) assist individual teaching teams or small groups of teachers outside the team who wanted to learn more about ITI; or (4) work with administrators on problems related to ITI, such as scheduling and identifying facility needs. The agenda selected or adapted by each team seemed to depend on that team's stage of ITI implementation. Teams that had previous experience with interdisciplinary teaming generally

chose either a one-day agenda devoted to unit development or an ITI related topic (e.g., cooperative learning, authentic assessment), or a two-day agenda that included having the project director observe classes, provide feedback on unit plans, or work with other interested faculty on one day. Teams that had little or no experience with teaming generally chose a two-day agenda that focused on unit development and problem solving related to ITI implementation (e.g., scheduling, team process).

The following descriptions illustrate typical first-year workshop agendas.

During a one-day workshop held at a local inn, the ITI team at one school reviewed lesson plans submitted by each school faculty member for a six-week integrated unit. The project director assisted the team with developing two criteria for the review: (1) inclusion of previously identified student outcomes, and (2) developmental appropriateness for middle-level students (e.g., experiential learning, build on student interests). The project director also assisted team members with developing criteria and instruments for summative student assessments and teacher evaluation of the unit.

During a two-day visit to another school, the project director spent the first day observing and talking informally with students working in cooperative groups on an interdisciplinary project. Day two of the workshop began with a team discussion of the previous day's interdisciplinary block activity. The project director reported positive responses to the unit activities, particularly group work, gathered from informal interviews with students. To generate further analysis of the effectiveness of unit activities, team members reflected individually and collectively on questions provided by the project director, such as: What do I see in student

involvement? What does student work tell me? What changes, if any, need to be made based on formative evaluation of student performance? The discussion generated some revisions in instructional strategies, assessments, and criteria for evaluating students' individual and group written work.

On-site workshops during year one tended to focus on defining the who, what, when, and how of ITI at each site. They included the following activities: developing a team vision and goals for ITI; fine-tuning an implementation strategy (model); designing new teaching strategies and student assessments; identifying team member roles and responsibilities; and determining methods for evaluating the effects of ITI on students and teachers.

All final 1992-93 workshops included opportunities for reflection on first-year progress and action planning for year two of the ITI project. Team members also identified specific needs for the second summer institute.

Action Research

The project director devoted a half day during the first on-site workshop at each school to providing information on methods and sources for data collection and to facilitating the team's planning of strategies to determine the effects of ITI on teaching and learning. She also included opportunities for team members to reflect on the ITI units and to monitor team progress toward their stated goals for ITI during each subsequent workshop. The four project teams varied in the degree to which they became involved with action research during year one. All teams planned integrated units, and three teams implemented them. All struggled with the observe and reflect

components of action research. Some teams seemed to have difficulty assessing the effectiveness of teamwork; others required assistance with developing criteria and methods for determining the effects of ITI on students.

In the beginning, most teams were comfortable with informal methods, such as team logs and group reflections, for collecting feedback on student and team performance. Toward the end of the first year, two teams developed unit evaluation forms and used them to solicit responses from students and teachers.

One team discussed findings with the project director during the final first-year workshop. The team's assessment of the integrated unit was positive although they identified ways to improve the unit for the following year. For example, teachers felt that cooperative learning activities generated student interest and improved students' group-process skills. Team members also discussed several ways to improve the unit, such as: (1) shorten the (three-month) timeframe; (2) keep student groups small (four-five); (3) allow students to self-select research topics; and (4) develop performance assessments other than written work.

Another ITI team collected data on unit effectiveness from students, teachers, and parents. They also analyzed data on student attendance, discipline referrals, and grade-point averages. Their findings were included in both written and oral progress reports shared with the other school teams during the second summer institute.

To assess team progress, during the final on-site workshop the project director asked members of one team to provide a "progress statement." Following are three representative statements of the team's assessment of its work during the project's first year.

- "We now have a clearer idea of interdisciplinary teamed instruction, and we have developed some good unit ideas for next year."
- "We have made progress in terms of people working together."
- "We have gained knowledge of different subject matter. We have become more generalists, rather than specialists."

To assess their work as a team, teachers at another school individually completed the questionnaire, "How to Know if Teamwork is Working," an instrument provided by the project director during the final year-one workshop. They then tabulated and discussed the results. On a scale of one (low) to five (high), the team generally rated their performance between four and five, indicating they felt that their efforts as a team had been successful.

Following her review of data collection methods used by the teams and observations of team reflections, the project director recognized the need for additional technical assistance with the action research component of the project during year two.

Staff Observations

Change efforts are always influenced by context (Fullan,1993). During year one of the ITI project, a number of factors influenced implementation. In some cases, the same factors were present (or absent) in all sites; however, for the most part, the degree to which a particular factor was present varied from site to site. During year one, many of the concerns were typical of any change process: that is, they were frequently related to informational (Stage 1), personal (Stage 2), or management (Stage 3) concerns (Hord, 1990). Informational concerns relate to acquiring more information about the innovation. Personal concerns reflect individuals' thoughts about

how the new program will affect them and whether they have the ability to carry it out. Management concerns have to do with understanding the requirements and logistics of putting new practices into place.

Although results of pre- and post-institute administration of the Stages of Concern questionnaire indicated reduced informational concerns, project participants continued to request information about models for ITI and sample units/programs. Teachers had particular difficulty designing or adapting curriculum integration models that focused on a theme or issue. Most had some experience with developing units that focused on discipline content or academic topics (e.g., World War II, hurricanes, career exploration). However, some teams found difficulty with reducing content, identifying essential and overlapping concepts, and repositioning essential concepts/skills in a thematic or real-world framework. In general, teams previously had taught units that were short (three to five days), content focused, and not sequenced. The greatest design difficulties teams encountered seemed to be related to determining outcomes for students and "mapping backwards" from the outcomes to unit themes, content, activities, and assessments.

Some of these difficulties may have resulted from personal and management concerns related to differing philosophies among team members about teaching and learning (discipline-based vs. integrated). These differences were particularly evident in two of the teams and proved to be a challenge to first-year workshop facilitation at these sites. For example, one of the teams had used a parallel disciplines model of integration for one year prior to joining the project. Some team members--those who held very traditional views of teaching and learning--felt a great deal of ownership of this model, which represents the first stage in integration. They appeared

reluctant to try more integrated approaches. Other members of this team were eager to move to more advanced stages of integration. The project director spent a great deal of time with interventions to reconcile the differing philosophies, to increase understanding of more integrated approaches to organizing curriculum, and to help team members develop more concrete methods for evaluating team and student performance.

Similarly, although all teams had some difficulty with using action research during the first year, those teams that had philosophical differences about teaching and learning, or that had strong beliefs about content coverage, showed the greatest reluctance to evaluate their efforts. Other teams that had used thematic approaches previously, or were just beginning ITI implementation, appeared more open to trying different models (e.g., interdisciplinary, integrated) and to evaluating the effectiveness of the approach. Across teams there was limited understanding of techniques for evaluating the effects of ITI on teaching and learning. Some teams found difficulty in evaluating their teamwork processes and effectiveness. Moreover, it seemed that many teachers had difficulty during year one with the concept of critical reflection on their own work and that of their colleagues. Since most teams were employing more authentic learning strategies, they were struggling with the development and management of new forms of student assessment as well.

The difficulties in evaluating team process may emanate from the fact that most teams lacked organization during the first year. Only one of the four teams assigned team roles (e.g., recorder, leader, communicator). When completing an ITI Implementation Strategy Form at the end of the summer institute, only one of the teams identified "determine responsibilities for team members" as an implementation strategy. In identifying their goals and implementation strategies, teams generally lacked clarity. For instance, at the conclusion of the summer institute,

all teams established at least one goal related to designing integrated units (e.g., "establish six integrated units," "develop a manual for integrated units," "integrate additional subjects"). However, team strategies for reaching these goals and methods for assessing progress lacked specificity (e.g., "communicate thoroughly," "documentation," "yet to be determined").

Problems with team organization and process during year one (e.g., differing philosophies, personal conflicts, failure to establish roles and responsibilities) may have resulted from the fact that some team members from two of the project sites did not attend the summer institute. It is therefore probable that their informational, personal, and management concerns were higher than those of teachers who attended the institute. At one school, a team member was not hired until after the institute; she did not know she would be participating in ITI, nor did she receive any training. At another school, the absence of a common vocabulary and knowledge base for ITI seemed to impede early workshop discussions and to cause confusion about expectations for project participation among those who had not attended the summer institute. Because institute staff designed activities to build team capacity, as well as to develop understanding of the concepts and processes of ITI, the absence of some team members from the learning process may have created barriers to implementation at their site.

Although the project director devoted a portion of the first workshop at each school to helping teams clarify a plan for their work together, most of them had some difficulty doing so, or they wrote a plan but later became enmeshed in management concerns and failed to monitor progress toward their goals. Across teams, although some were better organized than others, the logistics (time, space, day-to-day activities, etc.) of preparing and teaching a unit(s) seemed to take precedence over following the established action research components of *planning, action,*

observation, and *reflection*. *Planning* and *action*, typical management concerns, seemed to consume the teachers' time and energy. While this is quite understandable from the perspective of change management (Hord, 1990; Fullan, 1993), as well as from the perspective of one who is familiar with the culture of schools, it is nevertheless a professional concern that needs resolution. Not only do teachers need time to plan, they need time for reflection on their work. Time for reflection seemed to be a commodity in short supply and one that was not always a priority for some teachers.

Observations on the use of time across the four teams reflect the diversity of the teams, their vision for ITI, their working conditions, and their stage of concern. At the beginning of the project, three of the schools had block time for their instructional teams. In addition, team members in these schools had daily common and individual planning time. At one of these schools, the ITI team was composed of two instructional teams, and all members shared common planning time. At another school, the ITI team was composed of representatives from four instructional teams, and, although each instructional team shared common planning time, the ITI team did not. At a third school, the instructional team shared common time for planning an integrated program that was not yet implemented. The fourth project team had no common planning time. For two teams that designed schoolwide ITI units, the absence of common planning time was definitely an obstacle.

Although the absence of common planning time was a hindrance to ITI implementation, the presence of common planning time was not always an indicator of progress toward more effective planning or implementation. The ways in which time was organized and facilitated

seemed to influence progress toward the team's stated goals. For example, outcomes and feedback from team members at one school indicated progress with curriculum writing during each workshop. However, little progress seemed to occur between workshops. Apparent philosophical differences and unresolved conflicts among team members may have been an impediment to timely completion of the team's work.

Furthermore, ITI teams reported that daily common planning time of one hour or less was not sufficient to design a unit. Two of the teams used one or more of the eight release days provided by the project to complete unit plans at an off-site location, away from other teaching responsibilities and distractions. Also, two of the teams used release days to attend professional meetings related to curriculum integration or to visit other schools using block scheduling and/or teamed instruction.

A final, but important, observation related not only to use of time, but also to team progress in general, concerned administrator participation. Although at least one administrator from each school attended the summer institute, the level of administrator participation in site workshops and in regular team meetings varied across sites. When administrators participated fully in site workshops (full-day attendance and appropriate participation in developmental activities), team members seemed to perceive administrator commitment to ITI implementation.

When an administrator also met with the team on a regular basis, generally once a week, the team not only perceived greater commitment, but also made greater progress toward effective implementation of ITI. In two schools where administrators met and worked with the team on a regular basis, the teams worked together more smoothly, and communication among team

members and between team and project director was more effective. For instance, during the project's first year, the primary communication between the project director and each team was through an administrator. This was largely due to the fact that the teams did not assign roles and responsibilities (e.g., leader, communicator). When the administrator was actively involved in the team's work, this was not a problem. However, when this was not the case (as was true in two of the schools), accurate, effective communication about workshop needs and other information was difficult. In fact, in some instances it was nonexistent and resulted in confusion about workshop times and agendas.

Finally, when administrators communicated their support of ITI to other faculty through their assistance with implementation of schoolwide units and by providing time for discussion of ITI at faculty meetings or retreats, team members reported the highest perceptions of administrator commitment. Across the four teams, the degree of administrator commitment and involvement in the project was a factor in team progress.

At the end of the first year, two of the project teams were enthusiastic about their accomplishments with ITI, but two of the teams were floundering. Administrator involvement, team organization, and unencumbered time for the work of ITI were facilitating factors for the enthusiastic teams. The absence of these factors seemed to hinder progress for the other two teams. Philosophical differences among team members also impeded progress at two of the sites.

SECTION IV: YEAR TWO

Activities and Procedures

During year two, project staff conducted a summer institute for the school teams and four on-site workshops in each of the project sites. Also, the project director facilitated refinement of an action research plan and provided other technical assistance for each of the four school teams.

Summer Institute

Year two began with a second summer institute held July 19-22, 1993, at Mountain Lake, Virginia. Project staff felt that this rural, isolated site atop a mountain in southwest Virginia would provide an ideal setting for team building--the primary focus for the four-day institute. Thirty-nine participants from the four project schools attended.

To focus their thinking on team roles and responsibilities prior to the institute, the project director mailed an article on team-building and a list of questions for reflection to all participants. They were asked to read and respond to the article before the institute. Additionally, the director asked each team to prepare a display on their most successful interdisciplinary unit and to bring copies of the unit plan to share with others.

The institute agenda provided opportunities for team sharing and team planning during each of the four days (see Figure 3). Each day also included a "new information" segment. Based on feedback from the teams and the director's observations of their progress, staff focused new information and team sharing segments on four areas: (1) team roles and responsibilities,

Figure 3. Year Two Summer Institute Agenda

Interdisciplinary Teamed Instruction Institute Schedule

July 19— 22, 1993, Mountain Lake, VA

Monday	Tuesday	Wednesday	Thursday
Focus on Team Roles and Responsibilities	Focus on Authentic Learning Tasks 8:00 - 11:00 Team Sharing: Buffalo Gap New Information: Outcomes-Based Learning	Focus on Authentic Assessment 8:00 - 11:00 Team Sharing: Auburn New Information: Designing Student Assessments	Focus on Integrated Curriculum Frameworks 8:00 - 9:00 Team Dialogue Woodstock Focus Group 9:00 - 12:00 Team Sharing: Nelson New Information: Interdisciplinary, Multidisciplinary, and Transdisciplinary Frameworks Institute Evaluation
11:00 - 12:00 Registration Auburn Focus Group	11:00 - 12:00 Team Dialogue Nelson Focus Group	11:00 - 12:00 Team Dialogue Buffalo Gap Focus Group	
12:00 - 1:00 Lunch	12:00 - 1:00 Lunch	12:00 - 1:00 Lunch	
1:00 - 4:30 Team Introductions Team Sharing: Woodstock New Information: Team Process Museum Pieces	1:00 - 4:00 Team Planning: Create an Authentic Task 4:00 - 5:00 Group Meeting: Team Presentations	1:00 - 4:00 Team Planning: Develop a Rubric 4:00 - 5:00 Group Meeting: Self and Peer Assessment of Rubrics	Sponsored by AEL Rural Excel Program Appalachia Educational Laboratory P.O. Box 1348 Charleston, WV 25325 phone: (304)347-0400 or 1-800-624-9120
6:00 - 7:30 Dinner	6:00 - 7:30 Dinner	6:00 - ? Dinner Entertainment R & R	
7:30 - 8:30 Qualifying Performances for Museum Pieces Introduction to Journaling	7:30 - 8:30 Concurrent Sessions: Communication / Conflict Building Consensus Facilitative Leadership Team Meetings		

(2) authentic learning, (3) authentic assessment, and (4) integrated curriculum frameworks. Each team received an assignment prior to the institute to share its "best efforts" in a particular area.

Throughout the institute, staff modeled authentic learning activities and assignments that teams could adapt to their classrooms. Each day began with a team-sharing segment that utilized the expertise of one team. That segment was followed by new information provided by staff. In the afternoon, teams engaged in an authentic task for which they applied what they had learned in the morning.

For example, day two began with team sharing on authentic learning. Following one team's presentation on specific tasks it had designed for students and the students' evaluation of those tasks, two representatives from the Virginia Department of Education presented information on outcome-based learning and life-performance roles. In the afternoon during team planning, each team completed a life-performance task--a product or service to provide others who would engage in ITI in the future. While the teams planned, institute staff served as process observers and later provided feedback to each team on their team process skills. After each team offered its presentation to the large group, a self-evaluation was completed while other participants and staff completed a peer evaluation of their efforts. Based on the ratings, one team was proclaimed "winner" for the best ITI proposal.

The following day focused on authentic assessment. After staff began the morning with an overview of principles, types, and examples of authentic assessment, a school team shared its

accomplishments with interdisciplinary exhibitions of mastery, including a display of student work. Building on the team's presentation, staff provided a framework for designing authentic student assessments, including a discussion of criteria and benchmarking. Staff also provided each team with examples of assessment rubrics for a number of authentic tasks, such as oral presentation, group work, newspaper article, survey and questionnaire, graph, and hyperlearning stack. Using the new information in the afternoon during team planning time, teams designed rubrics for student assessments that could be used in their redesigned interdisciplinary units during the coming year. Before adjourning for an evening clam bake, participants met to peer and self-assess their rubrics using criteria provided by staff.

Although team building was the institute's primary goal, staff encouraged individual reflections. Journaling was introduced on the first evening, and staff provided participants with a journal for their reflections. Staff recommended the use of journaling not only for institute reflections, but also as an instrument for data collection and reflection on ITI work during the coming school year. Staff also asked participants for daily formative evaluation of the institute activities and used this feedback to modify the schedule or the activities when appropriate.

On-site Workshops

The project director conducted four on-site workshops at one of the project schools and, due to inclement weather, three at each of the other three schools. Based on needs stated in the team's action plan or communicated by the team leader, she prepared and mailed copies of a proposed agenda for the first year-two on-site workshop in early September. The first workshops were scheduled at each of the schools in September or early October 1993.

Two of the schools stated the need to develop a more nearly complete action plan for year two. The director and team members identified the following tasks for the first workshop at those schools:

1. Identify and prioritize goals for three areas of action planning for 1993-94: team processing, team-faculty communication, and ITI implementation.
2. Establish strategies, activities, evaluation methods, team roles/responsibilities, and timeline for one goal in each of the three areas of action planning.
3. Outline a plan and establish a timeline for AEL and other technical assistance and professional development for the 1993-94 school year.

In both schools these tasks were accomplished in a one-day workshop. During the morning, activities addressed the questions: "Where are we now?" and "Where do we want to be in May 1994?" To assist teams with identifying and prioritizing goals for action planning, the director used several strategies including a questionnaire on group processing; Force Field Analysis, a process to identify positive and negative factors related to goal achievement; reflection and brainstorming; and consensus voting.

In the afternoon, teams engaged in "Charting Our Course for ITI." They completed an action plan that incorporated strategies, activities, resources and technical assistance needed, evaluation methods, and a timeline for achieving one goal in each of the three areas: team processing, team-faculty communication, and ITI implementation. One team's action plan for one of its goals follows below.

Goal: Increase faculty knowledge and understanding of ITI.

Strategies:

1. Assess growth in faculty knowledge.
2. Orient faculty to ITI.
3. Publish newsletter.
4. Provide inservice.

Activities:

1. Administer "cross-curricular attitudes" survey and compare results with a followup.
2. Give team presentation on ITI to faculty.
3. Disseminate newsletter with ITI tips to faculty.
4. Provide inservice to address faculty needs/concerns.

Evaluation Methods:

1. Compare pre- and post-survey results.
2. Assemble demonstration orientation package.
3. Compile publications.
4. Survey faculty for concerns and provide desired inservices.

Evaluation Criteria:

1. 50% improvement in faculty awareness of ITI.
2. 100% of faculty receive orientation package.
3. Three inservices made available to all faculty.

Timeline:

Strategy #1: October/February/June
Strategy #2: September 15, 1993
Strategy #3: Monthly October-June
Strategy #4: November/February/June

Because team progress and needs differed, the initial 1993-94 workshops in the other two schools addressed different needs. One school team used the first workshop to redesign a

schoolwide unit taught during year one. With the director's facilitation, the team achieved the following objectives:

1. Clarify the unit's focus.
2. Establish student performance goals and methods for student assessment and unit evaluation.
3. Define introductory and culminating activities.
4. Establish criteria for learning activities.
5. Identify technical assistance needs.

At the fourth school, the ITI team had begun its first year of implementation. The team's needs were more immediate: (1) to expand knowledge of cooperative learning techniques, and (2) to outline the next ITI unit. Therefore, for the first workshop at this school the director prepared several cooperative learning activities, including jigsaw and think-pair-share, to engage the team in learning experientially about cooperative learning. She also used a mapping-backwards activity to facilitate design of an ITI unit. First, the team used brainstorming and consensus voting to select a culminating activity (performance assessment) for the unit. Next, team members determined student outcomes for the unit. Finally, they mapped backwards from the culminating activity to identify the skills and knowledge students would need to complete it satisfactorily, and to select and sequence the learning tasks and materials that would help students acquire the desired knowledge and skills.

The final two on-site workshops, held March-May 1994, were devoted to clarifying action research strategies, analyzing and interpreting data collected, and preparing the final team reports. For this reason, the details of those workshops will be explained in the next section of this report.

Action Research

During year two, the ITI teams became more comfortable with designing: (1) student assessment instruments; (2) unit evaluation forms for students, teachers, and others; and (3) surveys. Some team members also used journaling more extensively to record observations, reflections, and student success stories. Most teams kept more accurate records of team meetings as well. Therefore, they began to use the tools of action research more effectively.

The project director recommended that each team use at least three data sources to measure the effects of ITI at the site. She suggested sources such as student work, archival evidence (e.g., attendance records, discipline referrals, grade point averages, etc.), journals, observational checklists, interviews, and written surveys. All four of the teams collected data from students and teachers, using two or more of the suggested sources for each, to determine the effects of ITI on learning and teaching at their site. Two of the teams used parents as data sources, and two teams who involved community and business representatives in their ITI units received feedback from them as well. Generally, data collection was not difficult; analyzing, interpreting, and reporting the data were more problematic for the teams.

Each team was expected to complete a project report that included a narrative of the team's participation in the ITI project, a description of the action research processes used, an analysis of the data, and an action plan for continuing ITI in the school. To assist the teams with planning and completing this task, the project director prepared and mailed a list of guiding questions for the report after the fall 1993 workshops. However, when school teams requested more assistance with the report, the director planned a workshop on data analysis and reporting for each school.

She also prepared an outline for the team reports adapted from Sagor's (1992) suggestions for the format of a successful action research report. These materials provided focus for the March 1994 on-site workshops.

During the workshops, team members engaged in a data analysis process described by Sagor in How to Conduct Collaborative Action Research. This process required teams to "skim" the data to identify themes, issues, or factors that seemed to emerge; and to "interrogate" the data to determine whether the evidence truly supported their theories.

To accomplish this task, team members read through the raw data to identify items that came up repeatedly or idiosyncratic items that seemed noteworthy. This skimming process allowed teams to react intuitively to the data. Next, they constructed a data matrix. Major themes that emerged were listed across the top of the matrix, and individual data sources (e.g., surveys, unit evaluation forms, teacher journals, etc.) were listed on the vertical axis. As team members again read through the raw data, they looked for supporting data for each of the themes previously identified in the matrix. Through this process they verified the major themes and determined the need, if any, for additional data collection. After completing this process, team members summarized the data to determine: (1) what, if any, changes occurred in student attitudes and performance; (2) what, if any, changes occurred in teaching; and (3) what factors helped or hindered change.

At the conclusion of this workshop, teams were prepared to draft their action research reports. They outlined the sections and assigned individual team members' responsibilities for additional data collection/analysis, writing, and editing. During the final workshop in May 1994,

the project director facilitated a peer-editing process and provided critical review for each team's draft document. All teams completed their final reports (see Appendices A-D) by June 30, 1994.

Staff Observations

The concerns of participants in the ITI project closely paralleled the seven Stages of Concern About an Innovation described by Hord (1990). While most team members exhibited informational (stage 1), personal (stage 2), and management (stage 3) concerns regarding implementation of ITI during year one, by year two these concerns were reduced and consequence (stage 4), collaboration (stage 5), and refocusing (stage 6) concerns emerged. However, one school team initiated ITI with students during year two. Therefore, the concerns remained primarily personal and management. Project staff recognized the needs of participants related to these expressions of concern. They attempted to provide appropriate support and assistance to individuals and teams during the summer institute and on-site workshops, as well as through other types of technical assistance.

Consequence concerns focus on the effects of an innovation, in this case ITI, on students, and on interest by the individual in making the innovation and its use more effective for students. In response to data collected from students and teachers during year one, three of the teams made revisions in the units taught. These revisions tended to reflect changes in curriculum, instruction, and assessment. For example, one team concluded that a curricular focus on skills such as problem solving, communicating, and decisionmaking was more effective than a topic focus such as an historic time period. Not only was this change perceived by the team to make instruction

more meaningful and engaging for students, but also easier to organize and deliver for teachers. At this school, parents, too, provided positive feedback on the change in focus.

Teams also made changes in learning activities. Generally, these changes seemed to reflect a move toward less teacher direction and more student-centered learning. For instance, one team continued a unit focus on the community. However, instead of assigning topics for groups of students to research, a process was developed by which students identified, defined, researched, and proposed solutions for a local community problem.

Similarly, changes in student assessment included greater use of peer- and self-assessment procedures. Most teams also designed unit evaluation forms for students to complete and used the data to make revisions in what and how they taught.

Collaboration concerns, which related to collaborating with others to increase student outcomes of ITI, were prevalent with most teams. Two schools focused all or most of their ITI efforts on schoolwide units. These teams were often concerned with finding ways to involve and assist other faculty members with the implementation of ITI. An observation made by both of these teams was that instructional or grade-level teams might be a more appropriate vehicle for collaboration than an entire faculty. Another school changed instructional-team assignments in an effort to place individuals with more compatible educational philosophies on the same team. According to reports from teachers and administrators, the changes enhanced both teacher collaboration and student performance.

Another example of changes made during year two that relate to collaboration is that most teams organized themselves more efficiently. Two of the teams assigned roles such as leader,

recorder, communicator, librarian, etc. This organization seemed to enhance teamwork, to enable teams to achieve their goals, and to increase clarity of communication with the project director. For another team, the assistant principal continued to serve as leader. This approach may have been appropriate for this particular team for three reasons: (1) the assistant principal provided a great deal of support and assistance for the team's work; (2) she was well respected by all team members; and (3) there were considerable differences in educational philosophy among team members. For the fourth team, there appeared to be no clear definition of roles. As a result, teamwork seemed less effective. However, as a possible result of participation in a conflict-resolution session at the summer institute, this team functioned more compatibly, if not more effectively, during year two.

Refocusing concerns, which center on major ways to enhance or change the program to increase effectiveness, were evident during year two, particularly as teams began to write their final reports. As they reviewed data, teams looked for factors that helped or hindered implementation and began to contemplate program changes that would enhance their efforts to use ITI. As they planned the "future of ITI" section of the report, all teams indicated they would continue to use ITI at their schools although some were still uncertain about the changes they would make. For one team, the changes would involve moving to a new school and consolidating with another school's faculty. Team members realized that new demands of this situation might temporarily forestall growth with ITI. However, they expressed determination to continue the work, particularly through instructional teams, and to request professional development in ITI methods for the entire staff.

Another team planned changes in school structures to increase program effectiveness. For example, scheduling revisions were requested to allow for greater team effectiveness, including sharing the same students for particular class groupings (e.g., biology, English, history), and common planning time during the school day for instructional teams.

For the team that began ITI implementation in year two, the project director provided continuing support through workshops and materials designed to assist with unit development, classroom procedures, and methods of evaluation. Although this team struggled during its first year of implementation, members seemed to make progress toward defining what ITI would look like at the site, utilizing more collabortive student activities, and evaluating more critically the effectiveness of teamed instruction. For example, they concluded that including four levels of math instruction within the ninth-grade ITI block was not manageable. Therefore, they decided that for next year math would not be part of the integrated core curriculum.

Overall, during year two the teams made progress in terms of teamwork and ITI implementation. Most teams moved closer toward integration and away from fragmentation of the academic disciplines. In some cases, teams remained divided in their beliefs about what students should know and be able to do, and what is the best way to help them learn what is important. Teams employed different approaches to curriculum organization ranging from skills-focused, to theme-focused, to content-focused. The unit plans included in each team's final report (see Appendices A-D) illustrate this diversity. An apparent consensus of thinking across teams, for philosophical and logistical reasons, was that members of an individual instructional team (generally two to five teachers at the same grade level) should be the curriculum decisionmakers.

Based on the director's observations and on comments made by team members, the educators in the ITI project learned a great deal about data-based/reflective teaching. Although many of them struggled with the research component, their reports verify attainment of the goals of action research: to move toward more complete understanding of ITI, and to engage in action to improve student performance.

The project director observed considerable professional and personal growth on the part of most participants in the ITI project. It is her belief that the project's components were effective in supporting the change process, in addressing individuals' needs, and in bringing about this growth. The summer institutes were described by participants as excellent sources for new information, team building, and networking with others. Participants exhibited enthusiasm and renewal as they involved themselves energetically in the activities. The on-site workshops seemed to contribute most to building a learning community, promoting reflective teaching, and promoting and supporting the change process. Action research involved practitioners in developing knowledge, understanding, skills, and behaviors that informed and improved their practice. In fact, team members may have learned most about their experience with ITI as they engaged in writing their final reports.

SECTION V: SUMMATIVE EVALUATION

The purpose of the summative evaluation was to assess the major components of the project. Two principal questions direct this evaluation:

I. What is the impact of Interdisciplinary Teamed Instruction (ITI) on teaching and learning?

II. How effective was the project as a professional development model?

These two guiding questions were divided into eight more specific questions to provide greater focus and clarity to the evaluation.

1. What are the advantages and/or disadvantages of ITI?
2. What processes of ITI were most effective?
3. What was the impact of ITI on student performance?
4. What are students' attitudes about ITI?
5. To what degree did the participants feel involved in action research? How did they feel about their involvement?
6. How effective were the summer institutes?
7. How effective were the on-site workshops?
8. To what extent were the intended outcomes of the project realized? Intended outcomes included:

   - Increase in knowledge of ITI.
   - Development of human resources/print materials.
   - Assistance by project participants to others.
   - Increase in teacher empowerment.
   - Increase in collegial exchange/interactions.
   - Feedback on teaching performance.

To answer these questions, staff used a number of data collection techniques including questionnaires/surveys, review of records/documents, institute and workshop evaluation forms, and individual and focus group interviews (see Appendices E-I). Staff analyzed and summarized quantitative and qualitative data.

This section describes the procedures used in the summative evaluation, presents summaries of responses related to the evaluation questions, and provides conclusions based on the data collected.

Evaluation Procedures

In spring 1994, staff conducted several activities to collect summative evaluation data about the project. Staff developed questionnaires for teacher and administrator participants, as well as for non-participant teachers (see Appendices E-G). These questionnaires contained rating items for specific components of the project, as well as open-ended questions to solicit more detailed information. Staff conducted focus group interviews with participating teachers from each team and individual interviews with school administrators from each site (see Appendix I). The focus group interview and individual interview questions were developed after preliminary analyses of questionnaire data were completed. Staff used the questionnaire data to develop questions to elicit more in-depth information on particular issues.

Data results are summarized in this section under headings of the major evaluation questions. When appropriate, information on data-collection techniques is provided. For the

most part, however, the data are summarized by respondent group. Responses are presented as they relate to each major evaluation question. The term "teacher" represents teachers participating in the project.

From a list of faculty members, staff randomly selected a sample of teachers not involved in the project to respond to a brief questionnaire. "Non-participant teachers" designates those teachers who were not directly involved in the project. Different information was required from each respondent group (teachers, administrators, and non-participant teachers) to answer the evaluation questions; therefore, staff did not ask all respondents all of the same questions. Some summaries do not contain data from each respondent group.

What is the Impact of ITI on Teaching and Learning?

What are the Advantages/Disadvantages of ITI?

Teacher responses. Teachers noted two types of advantages of ITI: (1) advantages for teachers, and (2) advantages for students. The most frequently described advantage for teachers was increased cooperation and interaction with fellow teachers. For example, a teacher reported, "One very important change is a new 'dialogue' among teachers across curriculums. There is an interest in and excitement about the things we teach and how they can be integrated to provide students with a more meaningful learning experience." Other teachers described new methods of teaching, the emphasis on quality of teaching, and the connection of disciplines as advantages for teachers. "It combines my chosen profession and my need to seek new methods to teach. I can use the classroom and the school staff to implement new ideas, try out ITI, rearrange, shuffle, and challenge my previously held beliefs about teaching," said one teacher.

The most frequently noted advantage of ITI for students was emphasis on skill development. Teachers also noted greater student involvement as an advantage. Other advantages described were having student input, learning occurring for all students, an increase in student responsibility, more group work, and more hands-on activities.

One teacher said, "ITI isn't just for a set group of students. It's for all of them. They all get it." Another stated that giving students a choice in what they were learning was an advantage. "Students appreciate choice. The students really did do a good job. I think the reason they did a good job is because they chose the novels they wanted to read. And that is important," reported one teacher. Another teacher indicated, "With students involved, I think we are seeing more creativity and higher levels of thinking in the projects we are giving them."

Administrator responses. Administrators reported several advantages, but the most frequently reported was an increase in collegiality and communication between teachers. One administrator described it this way: "There is a continued discourse on the improvement of instruction. A movement away from isolationism to the benefits of globally agreed upon goals for student learning and programs." One administrator also noted that ITI created a better learning environment, while another thought that ITI was a new way of looking at instruction. "Teachers become more knowledgeable of their peers' teaching strategies, curriculum covered, and the relationship of one subject area with another," observed one administrator.

Non-participant teacher responses. Non-participant teachers reported positive changes as a result of their school's participation in the ITI project. In about equal numbers, these respondents noted a connection of the disciplines, as well as students who were more interested and seemed more positive about their learning. Non-participant teachers also observed an increase in

communication between teachers and increased creativity among participating teachers. Other advantages noted were improvement in student performance, continuity of the school day, more hands-on activities, participation of parents and community members, and an increase in higher-order thinking skills exhibited by students.

A non-participant teacher noted, "Students learn and don't realize they are because of the many fun activities that are created." Another indicated, "Some unmotivated students were more eager to learn." Another said that different departments "seemed to be working together more closely."

Teachers and administrators also described disadvantages of ITI. The main disadvantages noted were polarization among teachers, time needed to plan and implement ITI, and stress associated with the new endeavor. A few teachers thought that loss of content and putting "lower" students or special needs students in with average and above average students were disadvantages. Some non-participant teachers mentioned problems with scheduling students and covering subject content.

Summary. Teachers and administrators reported many strengths of ITI. Most felt that the greatest strength was the collaborative nature of the process. Teachers sought assistance from other teachers and enjoyed the opportunity to work together. Another major strength was that ITI led to more reflective teaching.

Many teachers and administrators reported an increase in student participation as a result of ITI. Because more emphasis was placed on learning problem-solving skills, most participants noted that students at all ability levels, including special education students, seemed to benefit

from ITI. Students were better able to work in groups and communicate with their peers. Increased creativity was observed in both teachers and students.

The weaknesses reported related primarily to implementation. That is, the difficulty of scheduling, finding enough time and resources, and developing effective teams were most often noted. Some participants described loss of content as a weakness. Others suggested that having higher-ability students grouped with lower-ability students held back the higher achievers. A few teachers noted that during group projects the higher achievers often completed most of the work. Some suggested that philosophical differences in beliefs about instructional delivery was problematic.

What Processes of ITI Were Most Effective/Successful?

Respondents described many processes during the data collection activities for the summative evaluation. These are discussed in four categories: (1) easy or difficult components to implement; (2) facilitative teacher behaviors; (3) facilitative administrator behaviors; and (4) hindering factors.

Easy components. Administrators reported that the easiest components to implement were: (1) development of units of study; (2) getting teachers to work and plan together; (3) arranging workshops; (4) encouraging teachers to move from the given curriculum to a real-world approach to learning; (5) integrating learning across core subjects; and (6) providing common planning time.

Difficult components. Administrators also reported some of the most difficult components to implement. The most frequently mentioned was team building. For example, strong personalities clashed or philosophical differences about instructional delivery sometimes posed problems for the team. Some administrators described the difficulty of getting an accurate message about ITI to parents, the community, and central office personnel. Others also noted the difficulty associated with logistical issues (scheduling students, physical space, money and time). One administrator reported, "Nothing about this project has been easy."

Facilitative teacher behaviors. Teachers and administrators described behaviors that seemed to facilitate the implementation of ITI. Facilitative teacher behaviors most often mentioned were flexibility, a willingness to try new things, risk taking, and compromising. Others reported were previous experience with teaming and an understanding of learning styles. Participants also viewed leadership qualities and knowledge of content area as facilitative behaviors.

Non-participant teachers described important teacher behaviors associated with successful implementation of ITI. These included teachers becoming more aware of subject areas other than their own, open-mindedness on the part of participating teachers, teamwork, and effective communication among all teachers. One respondent noted, "Teachers need to feel ownership of the project and make an effort in relating their class activities/content to the theme. Some teachers just 'pretend' or put on paper they are participating in the unit."

Facilitative administrator behaviors. According to most teachers, participation in the team process and expressing support for ITI to others were the essential facilitative behaviors that

administrators demonstrated. Another important administrative behavior was providing fiscal, time, and material resources as needed. Other behaviors noted included encouragement of risk-taking, ability to focus the team's attention, and an understanding of the process.

Hindering factors. Teachers and administrators described several factors that hindered ITI implementation. The two most important were lack of support (at all levels) and lack of time to plan and implement ITI activities. Major differences among teachers in their styles and approaches to teaching and learning sometimes were impediments to ITI implementation. Lack of collegial skills and commitment from participants also were described as hindering factors.

Summary. The majority of ITI processes described by participants addressed planning and implementation. And, as one might expect, the absence of supporting factors made a process unsuccessful. Clearly, the effective processes were those that included cooperation and collegiality among faculty members, fiscal and resource support from building level and central office administration, and time to plan and/or implement ITI units and activities.

In addition, certain characteristics of teachers and administrators contributed to more successful implementation. For example, nearly all participants indicated that for ITI to be effective, teachers need to be flexible, open to new ways of thinking about teaching and learning, willing to take risks, and willing to relinquish control of their content area. Administrator characteristics described as necessary for successful implementation of ITI include fiscal and resource support (including changes in the physical facility), flexibility; willingness to sell ITI to other faculty, the community, and central office personnel; and active participation in the teaming process.

What Was the Impact of ITI on Student Performance?

Teacher responses. A few teachers observed little change. However, most teachers noted many positive changes in student performance. Participants most frequently reported increases in student enthusiasm and involvement, and improved student performance in areas such as organization and on-task behavior. "More students participate. It is less difficult to keep students on task and involved," said one teacher. Another said, "Students seem to be more organized and responsible." Teachers also noted improved group and communication skills, improved performance of low achievers in particular, an increase in attendance, and a decrease in discipline problems. "Average students seem to benefit greatly. Below-average students seem to be pulled up. In fact, some have been very successful. Above average students benefit by learning about sharing and helping others," reported another.

Administrator responses. While one administrator reported observing no change in student performance, most administrators reported an increase in student performance and greater student enthusiasm. Another said, "Students showed significant improvement, greater interest in self-directed research and learning." They, too, described an increase in student attendance and decrease in discipline referrals.

Non-participant teacher responses. One respondent indicated she noticed students involved in ITI were "not as negative toward their poorer subjects." Others saw students as being more engaged, motivated, and positive about their learning. Another reported that students were making the connections between disciplines.

Summary. Overwhelmingly, ITI appeared to have a positive impact on student performance. Students performed better, exhibited more on-task behavior, improved their group and communication skills, and made connections between the content subjects. While no independent data were collected from students themselves, survey data from all participants and non-participant teachers support these positive outcomes. Though the long-range effect of ITI on student achievement is beyond the scope of this two-year project, most of the early indicators seem to suggest increased student performance as a result of ITI units and activities.

A small number of teachers did not observe a great deal of change or said they thought that ITI had a negative impact on students. These teachers remarked that higher-achieving students were held back by participating in activities with all levels of achievers. They also said that covering fewer curricular topics (a result of curriculum integration) might have an adverse effect on preparing students for later grade levels.

What are Students' Attitudes About ITI?

Teacher responses. A few teachers noted no appreciable differences in students' attitudes. Most teachers, however, described a number of observed improvements. They indicated that students were more involved and excited about their work and were beginning to reject traditional teaching (e.g., lectures, worksheets) approaches. "Students are much more excited about work and encouraged by one another to take risks themselves," said one teacher. Teachers reported an increase in students' ability to work together, improved academic self-esteem, as well as an understanding of the connection between subjects. Respondents again noted an increase in attendance and decrease in discipline problems. One teacher reported, "Positive improvement in attendance and lack of discipline referrals."

Some observations were not as positive. A few teachers indicated that stronger academic students resented having so much responsibility and that students experienced some confusion due to a redefinition of how they learn. "Students sometimes looked at activities as more fun time--not taking learning as seriously as they should," noted one teacher.

Administrator responses. Administrators observed greater student enthusiasm and students enjoying their participation in ITI activities. One administrator noted that "gifted and special education students discovered how they can and do assist other students while participating in the units." Fewer discipline problems and better attendance were again described. However, one administrator reported observing little change, if any.

Non-participant teacher responses. Non-participant teachers reported some changes in students' attitudes as a result of their participation in ITI activities. They viewed students as more relaxed and active in their learning and exhibiting more positive attitudes. One respondent noted that "some students were excited about being in leadership positions. Overall, attitudes improved because students were given more confidence in themselves and their abilities." These respondents also indicated that some students resented having to "carry the load for everyone" in the group activities. They reported that weaker students were "sliding by" in group activities.

Summary. As with student performance, most of the data support the perception that students' attitudes toward ITI were very positive. Students appeared more enthusiastic and were more involved in ITI unit/activities. Participants noted that student attendance rate was higher during ITI events and that discipline problems diminished. Many teachers reported that student self-confidence improved as a result of group activities and opportunities to be involved. A few

teachers noted that higher-achieving students perceived the group activities as more work for them and, therefore, were less excited about those activities. One teacher said that some students viewed ITI activities and group work as "fun time" and thus took their effort less seriously.

How Effective Was the Project as a Professional Development Model?

On the teacher questionnaire, staff asked respondents to rate the overall effectiveness of the ITI project as a professional development model as compared to other professional development activities they had experienced. On a scale of 1 to 5, with 1 being "not effective" and 5 being "very effective," the mean rating was 4.17. No respondent rated the item below 3.

Administrators responded to the same question. The mean rating for administrators was 4.29, with no response below 4.

Teachers described personal outcomes of the project, as well as things they would have changed about the project if they could. These comments are summarized in this section. Responses to the questions about action research, summer institutes, and on-site workshops are also summarized, as well as responses to questions about the extent to which intended project outcomes were realized.

Most reported personal outcomes related to professional growth and development. Teachers reported having experienced new enthusiasm and excitement about teaching. They were challenged by the project, enjoyed the opportunity to try new things, and increased their confidence. The most frequently reported outcome was increased collegiality. Teachers not only

learned about themselves, but also about other teachers and their teaching styles and content areas. One teacher stated, "ITI has given me the chance to begin building a curriculum that is not limited by the artificial boundaries of subject areas and specific learning standards."

Not all of the described outcomes were positive. A few teachers reported a great deal of frustration as a result of their participation in the project. Others indicated they had become more aware of the impact of "local politics" on their school.

What project teachers would have changed, if they could, about the project primarily related to having more time. They also indicated they would have liked clearer expectations about their roles and responsibilities in the project as well as the products to be developed. Several mentioned they wished for better preparation (physical facilities in place, more materials) before embarking on the project. Several also mentioned that the opportunity to visit other schools utilizing ITI would have been beneficial.

To What Degree Did the Educators Involved Participate In/Value Action Research?

Staff asked teachers and administrators to rate the value of teacher involvement in classroom action research on a scale of 1 to 5, with 1 being "no value" and 5 being "great value." The mean rating for this item by teachers was 3.70, while the mean rating for this item by administrators was 3.71. This rating was surprisingly consistent, although rating of the action research component, while still rated positively, was the lowest rated of the three major professional development model components. This finding may be attributed to the fact that participants had little knowledge of action research processes prior to the project.

Teacher responses. Most teachers provided responses to questions about action research, but some were unsure of what action research was or their role in it. The most frequent definition given was researching new methods of instruction or implementing a new methodology. More than half of the teachers (18 of 30) who responded to the questionnaire indicated that they would like to participate in action research projects in the future. Eight of the 30 teacher respondents indicated they would not want to participate in future action research projects. Four of the 30 teacher respondents were undecided about their future participation in action research projects.

During the focus group interview, teachers offered additional comments. One teacher described action research as "teaching methods that take place within the classroom...as opposed to laboratory research--immediately action research meant something we are doing in the classroom with real students, during real teaching hours." Another teacher noted, "You really pay attention to what you are doing--you try to take a long view and then try to take incremental steps toward that long goal or long objective. It gives you a bigger perspective on what is going on." "It has helped me realize that often the first time or two you try something, it may not necessarily work. You have to give it a fair shot by trying it several times," said one teacher.

Other teachers commented, "It's given me a little different perspective of how to teach because you are looking at things that can be changed to make it better for the kids," and "I think with reflection it really makes you take a look at what you have done and what can be done better."

One teacher's participation in action research led her to be more critical of educational research in general. "It has made me question more than ever before in my career, what research

really is and what constitutes valid results...and how those results can be colored from a particular perception. And I'm still having a real problem with that." She continued, "I see how easily it can be swayed...and how you might get results when you don't have all the various controls you might want for a scientific experiment. It has made me question the validity of much of what is being published in educational journals and called research."

One teacher responded, "I think I find it to be extremely exciting--invigorating. It also gives me a great sense of empowerment. Instead of having someone else dictate what will or won't work, I'm actually that catalyst. I'm asking; I'm doing the experimenting; I'm getting my feet wet right from the 'get go'."

Others indicated a need to have more exposure to action research. One teacher said, "I think teachers need to be trained on how to do it and how to use your data once you have it. I think there is a lot of teacher training that needs to be done before it becomes a real tool for teachers."

Administrator responses. Administrators thought of action research in different ways. One described it as "learning by doing!" while another described it as "gathering data to substantiate one's progress." One administrator said, "Action research means teachers making changes in their classes, teachers documenting what they are doing, teachers reflecting on what was done by recording the problems and promises." He continued, "It also means involving the learners in the process by including their comments." Another described action research as "developing new methods of instruction. It is an ongoing evaluation of teaching methods as they change, teacher and student reaction to the change, and positive and negative outcomes." Another administrator described action research as "direct participation in choosing and evaluating educational practices."

Five of the seven administrators indicated that they would again become involved in action research. One indicated that he would not "because it is too time-consuming and difficult to convince teachers that all the time in preparation for a research project justifies giving up some of the required assignments and duties that they like and enjoy." One administrator did not respond to this question. Most who indicated that they would again become involved saw action research as an excellent opportunity for professional growth. Most participants seemed to feel involved in action research but were unclear about their role in implementing action research and using the results. Several indicated that teachers should be trained to a greater extent in action research techniques before embarking on such an effort. A majority of the teachers indicated they would like to be involved in action research projects in the future.

How Effective Were the Summer Institutes?

Year One - Summer Institute 1992. Before the first year of the project, a summer institute was held to provide teams with further resources and professional development opportunities related to the project's work. "Linking the Disciplines" was held in Charlottesville, Virginia, on July 20-24, 1992.

Data were collected using an institute evaluation form that contained three sections. The first section consisted of 15 items to assess the extent to which the institute met specific objectives. Respondents indicated the extent to which they thought the objectives were met on a scale of 1 (not at all) to 5 (very much). The mean responses to those 15 items are presented below in Table 1.

Table 1

Mean Ratings of Year One Summer Institute Objectives

		N	Mean	SD
1.	Had clear outcomes	28	4.39	.83
2.	Had objectives that were met	28	4.57	.63
3.	Caused me to reflect on my practices	28	4.61	.63
4.	Caused me to examine some of my attitudes	28	4.18	.82
7.	Was conducted in a positive manner	28	4.93	.26
8.	Had activities that were well sequenced	28	4.54	.64
9.	Had activities that reinforced content	28	4.43	.74
10.	Included appropriate examples	28	4.54	.79
11.	Was conducted by competent trainers	28	4.96	.19
12.	Was conducted in a professional manner	28	4.96	.19
13.	Had meaningful involvement of participants	28	4.57	.63
14.	Has stimulated me to want to use the concepts/skills/materials in my position	28	4.68	.55
15.	Provided materials/ideas that will be useful to me in the future	28	4.64	.56

The evaluation form also contained seven items related to institute content. Participants were asked to indicate: (1) how much personal knowledge was gained; and (2) understandability of the presentations, activities, and materials. Both dimensions were rated on a scale from 1 (none or not at all) to 5 (very much). The results from this section are presented in Table 2.

Table 2

Mean Ratings of Year One Summer Institute
Knowledge Gain and Understanding

Content Areas	Knowledge Gain		Understandability	
	Mean	SD	Mean	SD
Rational for integration	3.96	1.14	4.50	.64
Interdisciplinary models	4.14	1.04	4.18	.77
Authentic learning strategies	4.00	1.06	4.27	.83
Performance-based assessment	3.93	.98	3.96	.96
Teaching/learning styles	3.92	.89	4.27	.72
Team building/ collaborating skills	4.14	1.15	4.41	.84
Criteria for ITI	4.33	.92	4.35	.80

An AEL evaluation form was used to rate the institute on eight dimensions. Respondents indicated the extent to which they thought the objectives were met on a scale of 0 (not) to 50 (very). The mean responses to those eight items are presented in Table 3.

Year Two - Summer Institute 1993. Between the first and second year of the project, staff held a second summer institute to provide teams with additional resources and professional development opportunities related to the project's work. "Solving the ITI Puzzle" was held at Mountain Lake, Virginia, July 19-23, 1993.

Table 3

Mean Ratings of Year One Summer Institute
AEL Evaluation Form

		N	Mean	SD
1.	Did AEL carry out planned activities at the times scheduled?	28	46.8	4.8
2.	How responsive were AEL staff and/or consultants to your requests for service and/or assistance during this event?	28	47.5	4.4
3.	In this event, how skilled were AEL staff and/or consultants in completing their tasks?	28	45.4	5.8
4.	How convenient was this AEL event to your location?	27	43.3	6.8
5.	During this event, how clear were AEL staff's and/or consultants' explanations?	28	40.7	7.2
6.	Did this event enhance AEL's credibility as an R & D service provider?	24	44.6	6.6
7.	How well did AEL staff and/or consultants understand your professional needs during this event?	28	40.7	10.5
8.	How useful were the materials provided to you during this AEL event?	25	45.2	6.5

In addition to conducting focus group interviews at the 1993 summer institute, staff collected data using an institute evaluation form that contained three sections. The first section consisted of 15 items that assessed the extent to which the institute met specific objectives. Respondents indicated the extent to which they thought the objectives were met on a scale of 1 (not at all) to 5 (very much). The mean responses to those 15 items are presented in Table 4.

Table 4

Mean Ratings of Year Two Summer Institute Objectives

		N	Mean	SD
1.	Had clear outcomes	35	4.06	.59
2.	Promoted team building	35	4.40	.60
3.	Caused me to reflect on my practices	35	4.37	.77
4.	Caused me to examine some of my attitudes	35	4.29	.62
5.	Facilitated development of new skills	35	4.03	.75
6.	Was relevant to my needs	33	4.09	.68
7.	Was conducted in a positive manner	34	4.88	.33
8.	Had activities that were well sequenced	35	4.17	.66
9.	Had activities that reinforced content	34	4.15	.74
10.	Included appropriate examples	35	4.31	.53
11.	Was conducted by competent trainers	35	4.83	.38
12.	Was conducted in a professional manner	35	4.91	.28
13.	Had meaningful involvement of participants	34	4.41	.61
14.	Has stimulated me to want to use the concepts/skills/materials in my position	35	4.46	.61
15.	Provided materials/ideas that will be useful to me in the future	35	4.57	.50

The evaluation form also contained seven items related to institute content. Participants were asked to indicate: (1) how much personal knowledge was gained; and (2) their need for further information/assistance. Both dimensions were rated on a scale from 1 (none or not at all) to 5 (very much). The results from this section of the evaluation form are found in Table 5.

An AEL evaluation form was used to rate the institute on eight dimensions. Respondents indicated the extent to which they thought the objectives were met on a scale of 0 (not) to 50 (very). The mean responses to those eight items are presented in Table 6.

Table 5

Mean Ratings of Year Two Summer Institute
Knowledge Gain and Further Need

Content Areas	Knowledge Gain		Further Need	
	Mean	SD	Mean	SD
Reflective teaching	3.33	.85	3.12	1.19
Interdisciplinary models	4.06	.68	3.61	1.15
Authentic learning strategies	3.83	1.04	3.71	1.30
Performance-based assessment	3.74	1.08	4.06	1.08
Teaching/learning styles	3.06	1.06	3.35	1.31
Team building/ collaborating skills	3.91	1.03	3.41	1.32
Outcomes-based learning	3.49	.98	3.87	1.09

Table 6

Mean Ratings of Year Two Summer Institute
AEL Evaluation Form

	N	Mean	SD
1. Did AEL carry out planned activities at the times scheduled?	35	43.6	5.6
2. How responsive were AEL staff and/or consultants to your requests for service and/or assistance during this event?	35	47.4	4.8
3. In this event, how skilled were AEL staff and/or consultants in completing their tasks?	35	45.0	5.3
4. How convenient was this AEL event to your location?	35	40.0	10.2
5. During this event, how clear were AEL staff's and/or consultants' explanations?	35	38.1	7.4
6. Did this event enhance AEL's credibility as an R & D service provider?	31	43.4	8.0
7. How well did AEL staff and/or consultants understand your professional needs during this event?	35	39.6	8.4
8. How useful were the materials provided to you during this AEL event?	34	43.4	8.6

On the questionnaire administered as part of the project's summative evaluation, teachers and administrators were asked to rate the value of residential summer institutes on a scale of 1 to 5, with 1 being "no value" and 5 being "great value." The mean rating for this item by teachers was 4.31, while the mean rating for this item by administrators was 4.83. This component of the professional development model was rated highest by both teachers and administrators.

Summary. Project participants considered summer institutes to be very effective. Participants rated the institutes highly with regard to utility of materials provided and staff presentations. They also enjoyed the comfortable atmosphere of the institutes, the professionalism of staff, and the flexibility in activities.

Summer institutes appeared to be a great success and an integral part of the ITI process. The materials and presentations offered at the institutes were received very positively and viewed by many participants as necessary for their involvement in such a project. Participants made suggestions at each institute on what to include in future institutes. In addition to a request for more information on ITI, many participants suggested additional opportunities to work with others at similar or more advanced stages of ITI implementation. Nearly all participants reported the opportunity to work with their team members in a relaxed, focused setting was essential to their team's development.

How Effective Were the On-site Workshops?

On the written survey, staff asked teachers and administrators to use a scale of 1 (no value) to 5 (great value) to rate the value of followup support through on-site workshops.

The mean rating for this item by teachers was 3.93, while the mean rating for this item by administrators was 4.29. This component of the professional development model was rated second highest (lower than residential summer institutes and higher than teacher involvement in classroom action research) by both teachers and administrators.

To What Extent Were the Intended Outcomes of the Project Realized?

On the written survey, staff asked teachers, administrators, and non-participant teachers to rate the degree to which they thought each of the following project goals were met using a scale of 1 (not met) to 5 (completely met). In addition, staff collected qualitative data for each goal. Table 7 presents the means and standard deviations for the quantitative ratings.

Table 7

Mean Ratings of Project Goals

Project Goals	Participant				Non-Participant	
	Teachers (N=30)		Administrators (N=7)		Teachers (N=15)	
	Mean	SD	Mean	SD	Mean	SD
Increased knowledge of ITI	4.13	.57	3.86	.69	3.50	.76
Human resources/ print materials	4.07	.74	4.17	.41	3.36	.74
Assistance by participants to others	4.00	.74	4.14	.38	3.64	.74
Increase in teacher empowerment	3.50	.90	4.14	.38	3.21	.58
Increase in collegial exchange	4.10	.80	4.14	.38	3.43	.65
Feedback on teaching performance	4.10	.88	4.29	.49	3.21	1.05

Qualitative data addressing each of the project goals is discussed below.

Increased knowledge of ITI. Nearly all participants indicated that their knowledge of ITI had increased as a result of their participation in the project. The information received lent support for their school's participation in the project and the educational change in which they were engaged. One teacher reflected, "We were already involved in a lot of these national reform efforts by being involved in this project. We got so many handouts...we could list authors or universities, or national associations that are encouraging and supporting and setting up frameworks to do what we are doing." Some teachers had been involved in teaming before, but during the ITI project had learned new things and refined skills. Others reported having engaged in components of ITI throughout their teaching career, but calling them something else.

Nearly all participants reported an increase in knowledge of ITI, even those who may have been familiar with teaming and similar projects before. Even with this knowledge gain, most participants still wanted to know more. Many indicated that at the end of the second year of the project they were just becoming familiar enough with ITI to begin implementing it effectively. Participants reported gaining knowledge from summer institutes, on-site workshops, and technical assistance provided by AEL. In addition, though, participants began learning about ITI from each other. This is certainly an important finding from this project.

Human resources/print materials. Most teachers reported their participation was valuable because of the resources made available to them through summer institutes and technical assistance. Teachers also found they could learn a great deal from each other. Many teachers

indicated that they would have liked more opportunity to visit other schools implementing ITI, but thought their interaction with faculty members from other sites at summer institutes was valuable.

Non-participant teachers were asked what resources they found useful as a result of their school's participation in the ITI project. More than half of the respondents indicated they had not used or were not aware of any of the resources made available through their school's participation in the ITI project.

As noted above, the most important human resource developed was that of participating teachers. Not only did they learn about ITI for themselves, but also they shared what they learned with each other and with other faculty. Evaluation data do not indicate that print materials other than the actual ITI curriculum units designed by each team have been developed to date. Individual site reports and unit plans are found in Appendices A-D. Although project staff are developing additional print materials, it may be too early to evaluate print materials developed during this project.

Assistance by project participants to others. Several of the non-participant teachers who responded to the questionnaire indicated that they had little contact with ITI team members. However, information about ITI was shared by project teachers in some sites through school inservices and presentations at faculty meetings.

Networking and communication among members of the ITI teams were greatly enhanced by their participation in the project. However, it appears that teachers had limited opportunity to assist others outside their team. Nevertheless, several individuals reported sharing what they

learned in the ITI project with others during faculty meetings, inservices, and in graduate courses. Some even shared materials with teachers in other school systems.

Increase in teacher empowerment. When asked about personal outcomes of involvement in the project, one teacher stated, "Although overused, 'empowerment' sums it up best." Though various constraints made some components of ITI difficult to implement, teachers overall felt they had a choice and influence with the ITI program and activities. "I have grown professionally and developed new relations with colleagues," said one respondent. Many teachers reported their administrators encouraged them to take some risks. "Our administrators have not only encouraged us to implement ITI, they have provided an atmosphere where risk taking is not something to fear," reported one teacher. "The willingness and support to create a risk-taking environment," echoed another. Still another teacher reported he experienced "freedom to express ideas and go ahead" with plans and activities during his participation in the project.

The data collected may be inadequate to answer this question completely. One of the difficulties is in how one perceives the word "empowerment." Clearly, teachers felt they had a good deal of control over the development of the ITI units/activities. Most felt they had considerable decisionmaking authority within certain parameters. Most participants reported feeling revitalized or excited by being involved in such a project. Others, however, felt that in their situation they had little influence or control over processes associated with ITI.

Increase in collegial exchange. There were many examples of collegial exchanges during the ITI project. Some of these included: informal discussions with faculty members; meeting

with team members to discuss planning of new units and to discuss strengths and weaknesses of past projects; sharing quality work of lower-ability students to resistant teachers to illustrate the effectiveness of ITI; devoting after-school time for planning strategy sessions; inviting others to attend meetings and see that collegial support is real and significant; sharing information through department meetings; team meetings; conversations with other teachers attending same conference; workshops at local, state, regional, and national levels; inservice for fellow faculty members; informational panel at another school; graduate classes; teachers visiting from other schools; sharing materials of interest to particular individuals; and sending materials to friends in other school systems.

Teachers reported "more involvement with other colleagues" in response to both questionnaires and interviews. One described experiencing "closer ties to and discovering hidden talents of fellow faculty members." Another said, "I have enjoyed the personal contact working with team members." One teacher responded, "I have been observed more, and my stock has gone up because people finally saw what I always do."

Participants reported more information about this intended outcome than nearly any other. There were certainly many opportunities for collegial exchange. Most teachers, even those who held some reservations about ITI itself, valued increased involvement with their colleagues. Administrators frequently noted what a positive aspect of the project this exchange and interaction turned out to be.

Feedback on teaching performance. Teachers reported many forms of feedback. These included: journal responses to class activities; group assessments; student feedback; discussion

with colleagues, parents, students, other teachers; questionnaires; test questions; discussions; anecdotal, student journals; student surveys and interviews; faculty survey; administrative evaluation (formal and informal); constant observation (in house, outside, superiors); compared grades/attitudes/behaviors of my traditional class to ITI; team critiques; studying lesson plans; and student surveys on interdisciplinary units. It was not always clear if these methods were different as a result of the teachers' participation in the ITI project; however, a wide variety of feedback mechanisms were articulated. One teacher noted that she "did not ask for feedback--students are always commenting anyway."

With respect to feedback from students, teachers reported: "I've thought more about what students need and not what I want to tell them." "I've done more since I've been with the ITI program in soliciting what the children want to learn." "I've done a lot more tying in with the other programs too."

Teachers in one site suggested establishing a network of student teachers who would visit ITI schools as part of their preparation and provide feedback to the teachers implementing the program. "Maybe if they visited...different schools that do interdisciplinary things, they could get more of an idea of what is going to hit them when they get out there. They may be a little better prepared or realize that teaching is not what they want to do. Not only can they gain from the experience, but they can give us feedback on what they saw. What we think is happening may not be what is actually occurring." Teachers at another site indicated, "It's not just feedback after the fact [that is important], but before you start too. Knowing what kinds of things you should be evaluated on."

For the most part, teachers did not solicit feedback about their teaching differently. Several did suggest they were soliciting feedback from fellow staff more than in the past. Many also were soliciting feedback from students more often. This outcome may be one that is difficult to evaluate with any certainty until ITI has been implemented for a longer period of time.

SECTION VI: CONCLUSIONS AND RECOMMENDATIONS

Evaluation data support several conclusions about the ITI project. These conclusions are discussed below. The recommendations that follow focus on actions that might help other educators realize the promise evident in Interdisciplinary Teamed Instruction. Recommendations for further research conclude this section.

Conclusions

1. *ITI had a positive effect on teaching in the four project sites.*

   Most teachers from the four project teams said they taught differently as a result of their participation. While not everyone considered ITI as the panacea for all of education's ills, all teachers reported having been more thoughtful about their professional activities during the project. Most notably, they reported increased interaction with their colleagues.

2. *Students' attitudes and performance, especially those of lower-achieving students, appear to be positively related to ITI units/activities.*

   Many teachers reported the positive effects of ITI on students. They observed students performing better, enjoying the ITI activities and learning environment, attending school more regularly, exhibiting fewer discipline problems, and working with peers more positively. In particular, and of import, were those reports regarding lower-achieving and special education students. These students appeared to experience even greater improvement as a result of ITI than did average and higher-achieving students.

3. *The ITI project was effective as a professional development model.*

   Summer institutes, on-site workshops, and action research apparently were effective in increasing teachers' knowledge of ITI concepts and processes and in enhancing team building. Participants felt that the opportunity for teamwork in a relaxed, focused setting was essential. They also reported that ongoing technical assistance provided during the year and their involvement in constructing knowledge about ITI were valuable to their professional growth.

4. *Teachers and administrators need more training in action research methods.*

   A majority of teachers and administrators were interested in engaging in future action research projects. However, many indicated the need for more training on how to conduct action research, specifically, how to utilize and report the results.

5. *Team building, including development of team-process skills, is a prerequisite for ITI implementation.*

   Effective interdisciplinary teams nurture a work environment characterized by trust, openness, interdependence, reliability, and commitment to shared responsibility. Before initiating ITI, teams need time to solve conflicts, to develop common core beliefs about teaching and learning, to define individual roles and responsibilities, and to learn to work cooperatively.

6. *There are several necessary conditions for successful ITI implementation.*

   Teachers identified administrative commitment and support as the most essential condition for successful ITI implementation. Other necessary conditions include:

(1) knowledge of the concepts and processes of ITI; (2) flexible scheduling that allows sufficient time for ITI activities and common planning time for teams; (3) support from colleagues, parents, and students; (4) fiscal support for training and resources, and (5) strategic planning that includes formative evaluation activities to monitor progress during development and early implementation phases. Though most of these conditions are identified in other literature and seem to make intuitive sense, the practical experience of the ITI project participants adds further support for their inclusion.

7. *Because ITI involves major changes in curriculum, instruction, assessment, and school culture, successful implementation is enhanced by a trained, external facilitator.*

   An external "coach" can maximize the possibilities for success and minimize the frustrations involved in implementing ITI. The facilitator understands that change lies in its human component and, therefore, provides appropriate interventions to support the individual needs of those who are engaged in change. According to informal feedback from the teams, external assistance provided by project staff was helpful in providing information on ITI and related instructional and assessment issues, as well as in team building and developing team-process skills.

Recommendations

1. Middle and secondary administrators and teachers should seriously consider using ITI in their schools, especially in programs for at-risk students.

2. Administrators, staff development personnel, teachers, teacher educators, and other change facilitators should utilize the ITI project's professional development model for introducing and implementing ITI. This includes:
   - summer institutes held in a comfortable setting away from school that provide training in team-process skills and experiences that promote team building;
   - ongoing technical assistance provided by a trained facilitator; and
   - training in the processes and uses of action research.
3. Before initiating ITI, faculty members and representatives from central office, community, and student body should engage in a study process to determine their readiness for and desire to begin ITI, and to develop an action plan for implementation. The plan should insure that the following conditions are in place before ITI implementation begins:
   - fiscal support for teacher professional development; learning resources; and, when needed, changes in physical facility;
   - administrator participation in ITI development and implementation;
   - adequate time for teachers to plan and implement ITI, including common planning time for team members and block scheduling for ITI activities; and
   - clear communication about ITI to central office staff, teachers, students, parents, and community members.
4. AEL should provide print and human resources to assist schools in planning and implementing ITI. These resources should include:
   - print resources that explain the concepts, processes, and conditions of ITI and assist faculties as they determine their readiness to initiate ITI;
   - print resources on team building and ITI implementation to be used in summer institutes; and

- trained facilitators to conduct summer institutes and provide technical assistance to schools that implement ITI.

5. Finally, this study raises several issues worthy of further investigation. Additional research is needed to determine:

   - the optimal administrator role, that is, specific administrative behaviors that facilitate ITI implementation;
   - which processes, methods, and conditions most effectively engage and support teachers in the research process; and
   - what ITI team configuration is most effective.

SECTION VII: REFERENCES

Beane, J. (1991, September). The middle school: The natural home of integrated curriculum. Educational Leadership, 49 (1), 9-13.

Borg, W., & Gall, M. (1989). Educational research: An introduction. New York: Longman.

Brazee, E., & Capelluti, J. (1994, Winter). The curriculum continuum: Getting where we need to be! Journal of the New England League of Middle Schools, 7 (1), 1-6.

Brooks, J., & Brooks, M. (1993). In search of understanding: The case for constructionist classrooms. Alexandria, VA: Association for Supervision and Curriculum Development.

Burns, R. (in press). Dissolving the boundaries: Planning for curriculum integration in middle and secondary schools. Charleston, WV: Appalachia Educational Laboratory.

Caine, R., & Caine, G. (1991). Making connections: Teaching and the human brain. Alexandria, VA: Association of Supervision and Curriculum Development.

Drake, S. (1993). Planning integrated curriculum: The call to adventure. Alexandria, VA: Association for Supervision and Curriculum Development.

Erb, T. (1987). What team organization can do for teaches. Middle School Journal, 18 (4), 3-6

Fogarty, R. (1991). The mindful school: How to integrate the curricula. Palatine, IL: Skylight Publishing, Inc.

Fullan, M. (1993). Change forces: Probing the depths of educational reform. London: The Falmer Press.

Fullan, M., & Miles, M. (1992, June). Getting reform right: What works and what doesn't. Phi Delta Kappan, 73 (10), 745-752.

Holly, P. (1991). Action research: The missing link in the creation of schools as centers of inquiry. (In Staff Development for Education in the 90s. Lieberman, A. & Miller L. [Eds.]. New York: Teachers College Press.)

Hord, S. (1990, Winter). Realizing school improvement through understanding the change process. Issues about Change, 1 (1). Austin, TX: Southwest Educational Development Laboratory.

Jacobs, H. (Ed.) (1989). Interdisciplinary curriculum: Design and implementation. Alexandria, VA: Association for Supervision and Curriculum Development.

MacIver, D. (1990). Meeting the needs of young adolescents: Advisory groups, interdisciplinary teaching teams, and school transition programs. Phi Delta Kappan, 71, 458-464.

Maeroff, G. (1993). Team building for school change: Equipping teachers for new roles. New York: Teachers College Press.

Perkins, D. (1991, October). Educating for insight. Educational Leadership, 49 (2), 4-8.

Sagor, R. (1992). How to conduct collaborative action research. Alexandria, VA: Association for Supervision and Curriculum Development.

Scarr, L. (1992, November). Using self-regulating work teams. Education Leadership, 50 (3), 68-70.

Vars, G. (1987). Interdisciplinary teaching in the middle grades. Columbus, OH: National Middle School Association.

Vars, G. (1991, October). Integrated curriculum in historical perspective. Educational Leadership, 49 (2), 14-15.

APPENDIX A

AUBURN HIGH AND MIDDLE SCHOOL

ITI TEAM REPORT

by

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ITI TEAM REPORT

INTRODUCTION

Auburn Middle and High School is one of six secondary schools in the Montgomery County Public School System. Auburn is located on Route 8 in the southwest portion of Montgomery County approximately 35 miles southwest of Roanoke, Virginia via Interstate 81. Auburn is located in an area rapidly moving from a rural farming community to a suburban residential community. The school is closely associated with Radford University and Virginia Tech through visiting professors, student teachers, and student aides as well as with local manufacturing corporations such as Volvo-White, Kollmorgen, Hercules, Corning Glass, and Federal Mogul.

Auburn High and Middle School is uniquely combined with a shared administration and counseling department. The high school has 265 students in grades 9-12 and the middle school has 237 students in grades 6-8. The high school offers a wide variety of courses including Advanced Placement, Honors, College Preparatory, Vocational and Work Training programs. Approximately 60% of each graduating class pursues post-secondary education. The faculty of 45 includes 22 with Advanced Degrees, a Presidential Scholar, a Tandy Scholar, a Virginia Science Teacher of the Year, a teacher selected for Classical Study in Greece and 10 teachers with extensive Advanced Placement Training.

The ITI Team at Auburn was organized for the school year of 1992-93. The team consisted of eight teachers and two

administrators. The academic areas that the teachers represented includes English, Social Studies, Math, and Science. The teachers also represent grades 6-12. The teachers were selected or volunteered for the project and came with a diverse knowledge of interdisciplinary instruction. Most of the teachers joined the project to learn more about interdisciplinary instruction and to receive training in how to use interdisciplinary instruction to improve student learning.

For the 1993-94 school year a special education teacher and a media specialist were added to the team. Until the ITI Team was formed, training at Auburn was an individual and voluntary effort on a subject or grade level. Philosophically, most members on the team agreed on their views of how to educate children and that content needs to be taught across subject levels. After one year of training and workshops, some teachers removed themselves from the ITI team. Reasons for leaving ranged from a loss of interest to philosophical differences concerning interdisciplinary instruction. Those who left the ITI team did not impede our implementation, but did not participate in our school wide units or only participated on a limited basis.

The goals for the first year were very loosely organized and ranged from gaining an understanding of interdisciplinary instruction to teaching three units for the entire school population. The second year, specific goals were identified such as to do more organized planning and team processing, to improve team-faculty-administration communication, to define and refine

small team connections, to gain faculty input for topics, to involve faculty in planning and implementation, and to move from activities to programs.

YEAR ONE

Prior to our participation in the Interdisciplinary Teamed Instruction Project, there was dissatisfaction with the status quo and with results we were getting using traditional teaching techniques. Many teachers had a predisposition to work with each other, and had done so when an American Studies/Humanities block was offered. Block time has been scheduled in sixth grade science/social studies and language arts/reading for six years. Our school also has an annual academic fair which showcases student work across disciplines. Several years ago, an inclusion model for special education students was implemented. This somewhat fragmented attempt to improve our means of instruction was bolstered when we were selected to participate in the AEL's two year project on interdisciplinary teamed instruction.

During the first AEL summer institute, we learned some essentials of interdisciplinary teamed instruction. Our team decided to implement a schoolwide interdisciplinary unit each of the six weeks grading periods during the 1992-93 school year. We used some of our summer institute planning time to outline several units.

The plans were introduced to the rest of the faculty at meetings held near the first of the school year. The first unit

was in celebration of the Columbian quincentennial. A faculty member interested in interdisciplinary studies, but not on the core team, planned an election unit to coincide with the national election. Another teacher who was not on the ITI core team planned a water unit to celebrate National Geography Awareness Week.

Surveys designed by the ITI team were distributed and collected after each unit. After closer examination, the surveys did not seem adequate, so they were revised and redistributed, unfortunately, they were misplaced and unavailable for evaluation.

Following a third unit on water, our team goals seemed to dissipate. Despite our early enthusiasm and desire to be organized, we were in limbo. There were no regularly scheduled meeting times, scheduling necessities at a combined school with many singletons meant we had no common planning time, our unit evaluations were not reviewed, and our good intentions were replaced with other teaching duties.

In addition, some faculty members felt resentment over a perceived loss of curriculum time. Many operated under pressure of quantity means quality. The possibility of block scheduling for the entire school during the 1993-94 school year created apprehension among many faculty members which furthered some faculty resentment.

In spite of these negative forces, other interdisciplinary units were implemented. The biology and government teachers developed a unit that simulated EPA hearings on current topics. Sixth graders were involved in a mythology unit as well as a Night

on the Nile unit. During an on-site workshop in May, 1993, a senior team came into existence. The workshop also brought the beginning of a theme and vision for the team.

Findings from year one, as observed by members of the faculty, included an increase in scheduled use of the media center and an increase in the use of technology.

Between the first and second summer institutes, there were changes in team membership. Additional teachers became involved with the second summer institute because of interest from year one's program.

We arrived at the second AEL Summer Institute with drooping heads, thinking because we had not carried out our plans for six school wide units that we had failed at our task. After an activity which called upon us to make a matrix chart of interdisciplinary activities for the 1992-93 school year, we found that we were very successful.

Our concept of TAHITI (Transformed Auburn Helps Interdisciplinary Teamed Instruction) was somewhat prophetic. With the change in county administration, there came changes in the county's vision. Restructuring was put on hold, and ITI was interpreted as restructuring.

YEAR TWO

We began the year full of enthusiasm and optimism. Our goal of finally integrating ITI throughout the school was aided by three factors: a new Vice Principal who was committed to the ITI concept and who had a fine arts background, the selection of a teacher as

facilitator/liaison, the selection of a concept and the revision of the master schedule to provide common planning time for the 6th and 7th grade teachers.

Our initial goal of block scheduling for grades 6 - 12 was deemed impossible, so the high school teams did not have block classes or common planning. The senior team (11th and 12th grade teachers) resolved to use their lunch period for team planning. We also acknowledged a need for regularly scheduled ITI team meetings so it was determined we would meet once a month and the facilitator would provide a specific agenda for each meeting. Our commitment to ITI was also bolstered by the news that two 9th grade teachers who were originally skeptical of ITI had decided to work on an interdisciplinary unit dealing with floods.

At the first scheduled meeting the team developed an action plan to improve ITI team-faculty-administrative communication. During subsequent meetings we began to implement the action plan. It was also decided that our first school-wide unit would deal with cultural diversity. Four team members representing middle and high school were selected to plan the unit. An intransigent non-team member was asked to help in the planning in the hope he would be energized by ITI. Three hours disappeared amidst the vitality of the planning meeting. It was decided that every grade level would study a different country or geographic area, represent that country at a U.N. simulation and showcase its cultural, scientific, ethnic and historical resources during the culminating activity, a World's Fair.

Through daily team meetings and after school planning sessions each grade level team began to implement the unit. Since every grade level was focusing on a different country the media center resources were not exhausted. The school displayed a communal spirit that positively swaggered. Resources were shared rather than hoarded, computers became tools rather than toys, students discovered their power and teachers remembered why.

Despite the mood of heady optimism pervading most of the faculty, some were recalcitrant. They cited an inability--or an unwillingness--to work cooperatively or to integrate their subject into the unit objectives. Others openly maligned ITI as a "waste of time." The perception among their students was that their lack of participation was a punishment. The gaps where grade levels were not participating were becoming more obvious. The teams hoped these people would elect to participate in a later stage of the process.

Fully two weeks into the unit and only three days before the school wide U. N. Simulation we encountered a major obstacle: a parent was concerned that ITI was not educationally valid. The superintendent directed us to cease ITI until parental concerns could be addressed in a public forum. We felt devastated. The efforts of over 400 students and faculty were disrupted in deference to a parent concern. We spent the following day discussing how to redirect the inertia that had been produced. Some teams suffered more psychic damage than others and went on to other, less volatile, instruction but most informally agreed to

continue ITI. We decided to continue with the United Nations Simulation since the students had already devoted much time to the preparation. We would wait until after the forum before deciding on the fate of the World's Fair.

As we awaited the forum we were visited by the assistant superintendent who told us we were responsible for the disruption because we did not keep the community informed of our plans. We knew the community was informed, but came to realize knowing and understanding were not synonymous. We learned the value of community education and involvement. Sending newsletters to parents was not enough. We identified communication with the community as one of the most important ingredients in the recipe for a successful ITI program.

A week later at the public forum, a petition containing more than 140 signatures in support of ITI was presented along with more than twenty parent and student speakers expressing their unsolicited endorsements of faculty and the ITI model. No one spoke out against ITI. We felt vindicated and affirmed. A week later we received the first Central Office acknowledgment of the results of the public forum. The Superintendent who was not present at the forum expressed concern for the validity believing the parents and students were hand picked and fed responses. We were angered by this reaction.

Having had community support for ITI confirmed, we decided to hold the World's Fair which was a very positive experience for students and teachers. The 11th grade teachers who were

disillusioned with the chronological approach to American history and literature were so encouraged by the student response to this thematic unit that they decided to approach the second semester from a thematic perspective. This would allow the students to spiral through concepts from varying thematic perspectives and would lend itself to more authentic interdisciplinary instruction. The 11th grade English, social studies and science teachers decided the unifying themes would be War, Reform Movements and The Changing Face of the U.S.: Cold War to Gulf War.

While the high school teams regrouped in the still uncertain political climate surrounding interdisciplinary study, the 6th grade team did not waiver in their implementation of ITI. They charged from one interdisciplinary unit to the next including Discrimination, The History of Riner and Energy. By their own admission they worked on more and better units and convinced other non-team faculty to work with them on parts of the units. By any standard the 6th grade team was successful. Unfortunately, their success merely put more distance between them and the 7th and 8th grade teaches who chose not to participate.

Toward the end of the second year most people who had been involved, even peripherally, with ITI realized the merit in the methodology. Even the Central Office gave tacit approval of ITI by supplying funding for an ITI staff inservice. Our hope is to gain more open and public Central Office affirmation of our commitment to and success with ITI.

Interdisciplinary teamed teaching is a superb tool for instruction. Students need the connections and reinforcement provided by an integrated curriculum.

We created and used many units including: Water, Middle East, Greece, Election, Mabry Mill, History of Riner, Logical Analysis, Floods, Contemporary Topical Debates, etc. Activities initiated in one area were followed up in other disciplines. For example, during the Middle East unit, students conducted library research on their assigned countries and then worked in groups to create booklets on these countries. The finished product included art, graphs, maps and charts, recipes, and games, as well as factual reports.

The Middle East unit concluded with a schoolwide World's Fair in which students exhibited artwork, homemade games and food, and Middle East dances. This was a component of the school wide Global Studies Unit from which we obtained the following quantitative data.

It is difficult to summarize in this short space all the responses which were made concerning the global studies unit. Thus, the summary data tables below show only partial results of the survey of student and faculty attitudes were conducted after the unit. Generally the comments were positive. Typical statements by seventh graders who took part in the project were: "Let's make it longer" and "Have more guest speakers." A tenth grader commented that we should "do it more often." A senior student felt that we needed to add more national emphasis such as

the actions of the Congress and the states.

While the overwhelming majority of the responses were positive, as shown in Table 1, there were some negative responses. A small percentage of students did not prefer being put in groups (see Table 2), some felt that parts were disorganized, and a number felt overwhelmed by the amount of work required to do the projects. Despite our efforts to assure them that they could turn in products or conduct performances for multiple credits, an option which on average 78% felt positive about, a number did make comments to the effect that they felt they had to do too many things in too short a period to time. Although we did design projects with the multiple credit option in mind, apparently we did not communicate this effectively to some of the students.

An examination of this table shows an overwhelming positive response to the activities of the unit. Seventy percent or more of the survey respondents felt that the activities were "Right On" or "Fine". A notable exception was the United Nations Simulation which received the lowest positive rating. This is also reflected in the comments, some of which suggest that the exercise was "rushed" and appeared "disorganized". Several students felt that they needed more time on the UN Simulation and many faculty felt the stop and go movement in response to political pressures outside the building led to the rushed feeling in the UN Simulation. One teacher stated that because of the apparent lack of support from outside the school, we should not have done the UN Simulation.

An examination of Table 2 reveals a student preference for hands-on activities (Making Something) either using Library Research or Working in Cooperative Learning Groups. Guest Speakers were also heavily favored as a learning style preference. The traditional methods of instruction (Lecture, Note Giving, Worksheets, and Text Book Based Instruction) were preferred by less than one third of the student respondents. Our interpretation of the lowest preference is tempered by a response form on which "Teaching Others" was changed to "Helping Others". The high selection of the Cooperative Group Choice indicates that the students do prefer working together, but may see "teaching others" as distinct from and more formal than "helping others". This interpretation is supported by the view that the low rating on "Oral Reports" was connected to the perception of the formalism of "Teaching Others". The selection might have been different had we phrased the choices differently.

There are some notable disagreements within these data, most obviously on Lecturing, Oral Reports and perhaps in Giving and Taking Notes. Here the choice of style of presentation by teachers is considerably different from the choice of style for learning by the students. In the other areas, there is reasonable agreement.

From these data one can reasonably draw the conclusion that most of the students and teachers felt positive about their experience with the Global Studies Unit. Although there was some disagreement on what constitutes a "best teaching style" when compared with learning style, we can gather information which

supports the conclusion that the students and teachers at Auburn High and Middle School use a variety of both teaching and learning styles and that the options for producing products and completing performances as demonstrations of understanding are appealing to the majority of students.

Table 1: Summary of participant responses to global studies unit.

1 = World's Fair
2 = United Nations Simulation
3 = Guest Speakers
4 = Cooperative Learning Groups
5 = Multiple Credits
6 = Library Research
7 = Learning about other cultures

Positive Comments: Right On or Fine (+) Undecided (O)
Negative Comments: Not Helpful or Way Off (-)

	1			2			3			4			5			6			7		
	+	0	-	+	0	-	+	0	-	+	0	-	+	0	-	+	0	-	+	0	-
Grade 6	97	2	1	66	31	3	88	5	2	90	7	3	96	4	1	90	8	1	92	5	2
Grade 7	88	10	2	48	42	10	74	24	2	43	50	7	63	27	10	56	38	5	86	8	4
Grade 8	84	14	2	42	47	11	85	10	5	65	27	8	80	18	2	64	27	9	81	18	1
Grade 9	83	8	9	35	30	36	91	4	5	68	15	17	55	27	18	78	18	4	79	14	7
Grade 10	85	15	0	71	17	13	75	25	0	84	15	2	82	15	4	77	15	8	83	13	4
Grade 11	89	5	6	38	30	33	75	19	6	81	11	8	82	11	7	85	9	8	85	15	2
Grade 12	80	7	13	59	13	28	59	39	2	76	20	4	73	22	4	88	7	4	85	13	2
Faculty	89	12	0	79	21	0	74	26	0	84	14	2	80	20	0	81	19	0	95	5	0
Average	87	9	4	55	29	17	78	19	3	74	20	6	76	18	6	77	18	5	86	11	3

Table 2: Summary of percentages for preference of learning styles by grade.

Learning Styles Preference Survey	Percentage stating preference							
Grade	6	7	8	9	10	11	12	Average
Textbook Based	14	23	28	20	27	11	17	20
Guest Speakers	58	73	75	79	75	67	59	69.43
Taking Notes	47	38	14	28	29	27	26	29.86
Listening to Lecture	18	28	32	28	24	24	25	25.43
Doing Oral Reports	29	13	28	5	15	20	24	19.14
Cooperative Groups	73	40	59	61	82	73	76	66.29
Library Research	44	36	38	49	62	67	73	52.71
Making Something	70	48	54	49	42	59	61	54.71
Teaching Others	27	18	14	15	15	17	22	18.29
Working on Projects	75	31	49	38	73	68	65	57

Faculty preference for teaching style were also surveyed regarding this unit. It is compared to student learning style preferences in Table 3 below.

Table 3. Comparison of teaching style with learning style preferences.

	Student %	Teacher %
Textbook Based	20	24
Guest Speakers	69	62
Taking Notes	30	45
Listening to Lecture	25	67
Doing Oral Report	19	43
Cooperative Groups	66	76
Library Research	53	40
Making Something	55	na
Teaching Others	18	na
Working on Projects	57	69
Doing Worksheets	26	31

We observed that using an interdisciplinary approach to the curriculum increased student enthusiasm and participation. In addition, we saw a growth in student skills, both academic and social. For example, more assignments were completed, the quality of the products improved, and student ability to work cooperatively noticeably increased.

FACULTY ATTITUDES AND AWARENESS

As we entered our second year of ITI, team members returned from the Mountain Lake workshop with a renewed sense of pride in our accomplishments during the previous year. However, we were uncertain about the attitudes of other faculty members toward ITI. During our change of administration, documentation of faculty responses to our first year units had been lost. In addition, negative comments were reported in several departments. In an effort to gauge faculty attitude and to work toward more positive responses, the team established two goals: (1) To increase faculty knowledge and understanding of ITI, and (2) To increase faculty input/feedback on planning and implementation of units.

To achieve these goals, our plan included a team presentation on the rationale and implementation of ITI, a newsletter to serve as a forum for ITI successes, and several inservices on strategies to enhance ITI. In addition, department chairs would lead discussions to generate potential interdisciplinary themes and topics.

To measure our success in attaining these goals, we agreed to administer the following instrument. This cross-curricular assessment tool was developed by Joan Palmer of the Howard County, Maryland school system.

Cross-Curricular Assessment

Where I am Now				Where I would like to be
	1	2	3	
	Not at all	Somewhat	Definitely	
1 2 3	Consider my self a cross-curricular planner?			1 2 3
1 2 3	Plan with other teachers?			1 2 3
1 2 3	Make cross-curricular connections with other subjects?			1 2 3
1 2 3	Given the opportunity, explore schedule modifications to encourage team planning?			1 2 3
1 2 3	See value in teaming with professionals in discipline areas?			1 2 3
1 2 3	Think that the grade level curriculum can be connected?			1 2 3
1 2 3	Communicate to my fellow teachers about my content?			1 2 3
1 2 3	Share teaching strategies and ideas which I have found effective?			1 2 3

My attitude toward interdisciplinary teamed instruction has changed in the following way ....

Our evaluation criteria were that 80% of the faculty would provide feedback by completing and returning the survey, and that 50% improvement in faculty self-awareness would be observed. A pretest given in September and a post test in March provided the data. The results of the survey are shown in Chart A.

Cross Curricular Assessment - Chart A

September 15 March 30 Question	Where I am						Where I would like to be					
	1 Not at all		2 Somewhat		3 Definitely							
	1		2		3		1		2		3	
1	19	8	58	65	23	27	0	0	31	32	69	68
2	17	22	73	59	10	19	3	0	28	41	69	59
3	7	2	77	59	16	39	0	0	11	19	89	81
4	44	24	34	35	22	41	4	11	32	21	75	68
5	0	2	34	32	66	66	0	0	25	27	75	73
6	0	2	48	50	52	58	0	0	28	41	72	59
7	7	5	87	78	6	17	0	0	23	27	77	73
8	36	5	61	65	3	30	0	0	18	22	82	78

Thirty-one of 42 teachers responded to the first survey, while 37 of 42 responded to the follow-up survey. The increase in the number of respondents accounts for some of the differences in the pretest and post test. Figures on Chart A reflect percentages.

The survey reveals significant change in several areas. Teachers began to see the advantages of working cooperatively. In September, 19% did not consider themselves cross-curricular planners, and 17% never planned with other teachers. Furthermore, 3% had no desire to plan with others. By March, the number of teachers who definitely made cross-curricular connections increased from 16% to 39%, and all faculty members saw planning with others to some extent as a goal. As one teacher stated: "I didn't think I could do it. I am an old fashioned 'do it myself' teacher. But it is great to share responsibilities and cover material in depth."

Teachers also began to explore schedule modifications. In September, 44% never considered modification. By March, this figure was reduced to 24 %, while 41% were definitely exploring this area. For some, the exploration led to a fear of change. Discussion of block scheduling may explain the percentage decline in answering this question in the "Where I would like to be" column. For others exploration made them aware of our current restrictions. One teacher commented, "ITI is not practical with our current schedule. In many cases teachers do not have common planning or shared students." Another observed, "ITI can only be accomplished if sufficient time and common planning are provided."

On a more positive note, teachers began to communicate and share ideas. In September, 36% responded that they never shared strategies or ideas. Only 5% responded in this way on the March survey.

Through the course of the year, the majority of the teachers developed a more positive attitude toward ITI. Some observed that "students were active, not passive participants in groups and projects" and that "more students that don't normally participate in class activities were engaged." The advantages of ITI were aptly summarized by one faculty member: "The excitement of the students who participated in ITI units is contagious and encourages me as a teacher to explore more opportunities."

"One of the outstanding things ITI has done for us is to give us an appreciation and understanding of other class curricula. That's a result of this study." An ITI team member.

In our second year the curriculum integration of ITI was more inclusive among all grade levels and departments partly because of our inclusion program for special education students. By having teachers in classrooms other than their own, this facilitated sharing ideas and content across the curriculums. We were able to meet more of our student's needs through ITI. Our goals for the year facilitated this. Our gaps and misunderstandings became apparent.

The ITI team sponsored several workshops, staff development activities and participated in a faculty forum in order to help faculty members gain a better understanding of ITI. Gains have

been made in several staff areas.

Our team has been more focused with the appointment of Bonnie Phoenix as our facilitator, regularly scheduled monthly meetings, and consistent administrative support. We developed a team focus and maintained total team planning. Three types of ITI models developed, such as, school wide, grade level, and cross grade teams. The importance of scheduling and team planning time became more apparent.

Our newsletter and data collection instruments have proven to be useful tools. No distinction was made between team members and other staff so team member data can't be analyzed apart from the faculty as a whole. We have had time to evaluate our data and realize our strengths and weaknesses. Our units have been presented on larger scales and we now often subconsciously incorporate ITI into our daily routines. As one teacher states: "Now when teachers are grouped with their heads together in the cafeteria or the lounge.....ITI is what they're talking."

THE FUTURE

The future of ITI is difficult to determine at this point for a number of reasons. One is that the units we have done, more or less school wide, the in-services we have had and are scheduled to have in the fall, and the ever-increasing number of teachers who are involved in interdisciplinary activities, all will combine to strengthen ITI and help it continue as a guiding force in continuing teacher development in our school. Further evidence along these lines is that our school administration has grown more supportive of its ideals, the Central Office has approved our rather expensive requests to have Doug Fleming and Lynn Cannaday come for inservices at our school, people involved in ITI have discovered they are in sync with knowledgeable and prestigious groups nationally, and people involved in ITI have been awarded large rants for summer study. Another rather ironic but favorable point is that all three surrounding counties, Floyd, Giles and Pulaski, are going to block scheduling in the fall.

MOCK UN GENERAL ASSEMBLY

Students from all grade levels will participate in the mock UN General Assembly on Friday, November 12 during 3rd and 4th periods. Selected students and classes will be in attendance as delegates and observers. The delegates will sit in the front sections of the auditorium and the observers will be seated in the rear. Some teachers have decided only to send student reporters to observe the session for a period of time and then report back to their class. If you bring your entire class, you may enter and leave quietly at any time. There will be a short recess during the break between 3rd and 4th periods.

The General Assembly will hear short reports from some of its major committees and will have resolutions introduced and debated concerning major regional issues. The main job of the various class level groups will be to come up with the resolutions to be introduced, and to be prepared to debate and vote on those resolutions. In addition to the suggestions below, there is the following in this packet.

1. A brief sketch of the UN and guidelines for drawing up resolutions
2. A sample resolution
3. A resolution form

Suggestions On Generating Resolutions
Focus on these areas:

1. Political: Settlement of any major political strife (civil or international) in your region
2. Economic: Economic aid for development or resource management necessary to raise the standard of living in your region
3. Health (social): Major health issue necessary for advancement of humanity in your region
4. Environment: Major environmental issues in your region
5. Other areas: Your choice

Please note, limit resolutions to one particular category (political, economic, military, social, etc.) for purposes of having more time to debate and research each issue.

Have resolutions drawn up and turned into Mr. Beach/Mr. Shoap by Wednesday AM 11/10/93. Please distribute copies to all teachers at the same time.

Resolutions should be discussed in class prior to the General Assembly meeting on Friday 11/12/93. All resolutions will be debated and voted on at that time. You should decide on the resolution and how you will vote based on military, political, economic, and cultural ties between your country and the other member nations. In addition, various committees, represented by 12th grade students, will report their activities to the General Assembly.

Classes that are assigned regions should come to the General Assembly prepared to represent a specific country in that region. Countries should be represented by a spokesperson and have a sign identifying the country.

GLOBAL AWARENESS

GOALS:

To increase awareness and sensitivity to other cultures
To provide an opportunity for students to interact with representatives of other cultures
To appreciate the contributions of other cultures to the United States
To recognize our role in the global environment
To improve research, application, and communication skills

SCOPE: From October 19 to November 27 Auburn High and Middle School will celebrate International Month. During this period classes, departments, and co-operative learning groups will focus on global awareness through a variety of activities.

TIMELINE:

October 25-29	Rain Forest Week
October 25-Nov 21	Speaker's Bureau
November 8-12	UN Week
November 12	UN Simulation (Pd 3 and 4)
November 15-21	Geography Week
November 16 or 17	International Visitors
November 23	Auburn Exchange Students (student experts will visit other classes, role playing students from the region they have studied)
November 24	World Fair (music, food, dancing, games, slides, displays, etc.)

RESPONSIBILITIES:

1. Each grade level will focus on the following cultures:

Sixth	Middle East
Seventh	Central America
Eighth	Japan

Freshmen	South America
Sophomores	India and China
Juniors	Africa
Seniors	Russia

A. Consider history, geography, economy, culture, etc.

B. Co-operative learning groups from each grade level will host booths for games, food, music, and displays at the World Fair

2. Departments will be responsible for the following bulletin boards

Industrial Arts	Agriculture and Resources from around the world
Language Arts	World authors
Social Studies	World Religions
Family Living	Foods and recipes from around the world
Math	Math through Time (contributions from other cultures)

3. Rain Forest Week	Bob Sandy
4. Foreign Students	Don Finn
5. Speaker's Bureau	Steve Bull and Kitty Brennan
6. Flags for UN Week	Don Finn and Kitty Brennan
7. UN Simulation	John Beech
8. World Fair	Bonnie Phoenix
9. Foreign Language Announcements	SCA (various faculty will coach)

Week 1 - Spanish
Week 2 - French
Week 3 - Japanese
Week 4 - German

Auburn's World Fair

Date: November 24, 1993
Place: Gym, auditorium, and lobby
Schedule:
- First period- set up
- Second through fourth periods- attend fair
- Fifth period- clean up

Activities:
- host country's displays (incl. technology, agriculture, art, literature, science, music, drama)
- lead games
- cook/serve foods
- international folk dance group--community group
- singing

This is an outline of the Auburn World Fair. Each department is encouraged to participate to make the fair a true exposition of the countries highlighted in the Global Awareness Unit. Please indicate activities your department will focus on and list property you will need for set up. As soon as you decide on your contributions and needs, please return a list to Bonnie Phoenix.

APPENDIX B

BUFFALO GAP HIGH SCHOOL

INTERDISCIPLINARY TEAMED INSTRUCTION PROJECT

Buffalo Gap High School
June 30, 1994

Introduction

Description of School

Buffalo Gap High School is one of five high schools serving Augusta County, Virginia. The school is located twelve miles west of Staunton in the western part of the county, and the surrounding mountains, farmland, and woodlands create a beautiful rural setting. Of the school district's 458 square miles, 280 square miles lie in the George Washington National Forest and Staunton Dam Watershed, leaving 178 square miles for farms, villages, and homes. Located within the area are several villages and small settlements and one small incorporated town.

The area has a conservative, relatively stable, homogeneous population. A recent survey shows that 88 percent of the students have lived in the Staunton/Augusta County area since they started school in kindergarten or first grade. Most of the students come from lower middle class white, Protestant families. Very few Black families and even fewer Hispanic or Asian families live in the school district; however, several Russian families and one Bosnian family have moved into the area, creating a need for English as a Second Language (ESL) services.

During the school year 1993-94, approximately 525 students enrolled in Buffalo Gap High School. Daily attendance is good: the rate was 94 percent for 1992-93 and 92 percent for 1993-94. Age-grade distribution shows no major variance. In 1993-94 the school identified 18 percent of the students as exceptional: 12 percent as being gifted and talented and 6 percent as having learning disabilities. The average SAT score for Buffalo Gap students in 1993 was 852--397 verbal and 455 math.

Description of Team

Teachers at Buffalo Gap began to consider restructuring as a result of changes that started with the Virginia Department of Education and filtered down to the local level. In the spring of 1991, the division superintendent challenged secondary school principals to initiate restructuring plans in their schools, and the Buffalo Gap High School principal repeated the challenge to the BGHS faculty. In order to gain more information about what direction to take, a team of thirteen faculty members visited York County High School. Several members of the York faculty were in the process of writing the curriculum for their restructuring efforts, but they had not yet implemented their plans. Later the BGHS team visited Capitol High School in Charleston, West Virginia, and saw a successful humanities program which used integrated team instruction in a new multimillion dollar facility.

In the summer of 1991 the Buffalo Gap principal gave a group of teachers a mandate to design a pilot program for ninth graders which would include teamed block instruction in a non-traditional method. These teachers came up with the idea of SEAL, a subject enhanced approach to learning for three subjects---English, Earth Science, and World Geography.

All incoming ninth graders were divided into two groups and then scheduled into a three period block of time, either in the morning or in the afternoon. These students were then assigned a period and teacher for each of the three subjects involved. However, the team teachers could use the block time however they wished, changing from day to day to fit various activities. The rest of the day students followed the traditional schedule.

Each teaching team consisted of an English teacher, a science teacher, and a social studies teacher. These teachers worked with the SEAL block three periods a day and taught

other subjects in a traditional setting the other periods. A full-time resource teacher worked with both groups. An assistant principal was closely involved with the project and became the administrator who helped to find the funds, to provide the facilities, and to smooth the way for the project.

During the summer the wall between two classrooms was replaced with a movable partition, creating an area large enough to hold all the students in one block. All SEAL teachers had their desks located in a large planning room, and they soon found that the daily contact and continuous exchange of ideas resulted in integrated units emerging almost spontaneously. During the 1991-92 school year the teachers taught at least one fully integrated unit each six weeks. One of the most successful was a "World Tour" project which culminated with students creating murals of architecture associated with major religions in different parts of the world.

In the spring of 1992, a teacher and the assistant principal attended a workshop sponsored by the Appalachia Educational Laboratory (AEL). This workshop outlined ways to utilize interdisciplinary instruction in the classroom. The workshop concluded with a request for schools to become involved in a two-year effort to encourage teamed instruction. Buffalo Gap was selected as one of three schools to become involved in this project.

The first year with AEL brought several changes to the restructuring effort. During the summer four of the team members, three other teachers, and an administrator attended a week long AEL institute. The participants spent the week learning the ITI terminology and the AEL approach to planning and teaching. It became obvious to the SEAL teachers that the AEL approach was different from the subject enhanced approach and that it required changes in the SEAL program. It seemed that AEL favored a much more integrated unit plan than the one the

SEAL team had generally used. Also during this summer the SEAL planning room was converted into the new computer lab. Although a smaller room was provided for SEAL meetings, the teachers' desks were moved back into their individual rooms and much of the spontaneity of unit planning was lost. Still another change was that the resource teacher could no longer work with the team full time.

The first part of the 1992-93 school year the SEAL team struggled. One problem was that there were more students than the year before and the double room used for large group activities was not large enough. About mid-term, the team also realized that they had not been fully utilizing the flexibility that block scheduling provides. Therefore, they made the decision to begin grouping students within each block at the teachers' discretion for various activities and skill development. Also the team finally realized that change takes time. They decided to slow the pace of developing ITI units and to continue with the original plan of subject enhancement. Teachers would encourage students to see the connections among subjects, but they would develop most ITI units where their subjects naturally overlap. As a result, the second semester went more smoothly.

Project Goals

The original goals of the SEAL project were as follows: to enable the student to see how subjects are interrelated by using a subject enhancement approach to learning; to enable the student to see the practical application of each subject; to use the expertise of individuals in the building and in the community more efficiently and effectively; to foster cooperation among faculty to implement the program; to share information about our program with students, parents, faculty, and community; and to develop within each student self-motivation, self-discipline, high academic expectations, and a positive attitude toward the high school program. When the team became involved with the Appalachia Educational Laboratory, it added a vision statement: The ITI team believes that all students can learn; that thinking is central to learning; that students learn best by doing; and that teachers must be knowledgeable and enthusiastic facilitators of the learning process.

Description of Research Process

SEAL / ITI Time Line

May '91	Concept of restructuring initiated
July '91	SEAL developed
Aug . '91	Modification to building and schedule A. Block Time B. Common planning time C. Common planning room D. Double room for block time
Sept.-Dec. '91	Selected SEAL units taught by each team.
Jan.-Feb. '92	Large ITI Unit "World Tour" planned and initiated
Mar. '92	County directive about grouping refocused strategy for SEAL
May '92	AEL Workshop refocused ITI commitment
Jul. '92	AEL Workshop focused the "How" of ITI
Aug. '92	SEAL Inservice to faculty - interdisciplinary teaching - teaching styles
Oct. '92	AEL guidelines for implementing ITI strategies
Oct. '92	Augusta County ITI Unit for year planned
Feb. '93	AEL expectations clarified - philosophical conflict between SEAL and ITI becomes apparent

Feb. '93	Regrouping of students - from homogeneous to heterogeneous - skill levels - various activities
April '93	SEAL meeting to refocus for next year
May '93	Augusta County Unit completed - field trip - book project finished - presentation to School Board
Jul. '93	AEL Summer Workshop - including new team members and outside faculty increased intrafaculty awareness. - idea of Showcase of Excellence conceived
Aug. '93	SEAL Inservice to school faculty - increase awareness of SEAL and ITI - involve faculty - introduced Showcase idea
Sept.'93	Three block groups with three teams established (one group focuses on students with special needs - Literacy Passport)
Sept. '93	AEL Workshop detailed Action Research Plan requirements
Feb. '94	AEL Workshop --clarified ITI implementation procedures as a progressive program --further defined Action Research for project
April '94	Exit interview of SEAL teachers with Greg Leopold

April '94	Teams organized AEL Project writing requirements
May '94	"Showcase '94: A Celebration of Excellence"
May '94	AEL Project draft finished
June '94	AEL Project completed

Year One

The morning team taught parallel ITI units on hurricanes, rivers, paragraph writing, folklore, weatherlore, the rain forest, and the Klondike. Units developed by the afternoon team included a media center scavenger hunt, an orienteering unit, an imaginary bike trip around Virginia, a tour of the United States, and a Latin America problem/solution unit. One of the most successful of the integrated units in the afternoon block was one in which students became musicians in a contemporary band and planned their band's tour of Europe, complete with travel arrangements, ticket sales, advertising posters and brochures, and promotional videos.

A very successful unit, "Western Augusta County," included both the morning and afternoon teams. This was a multidisciplinary unit which involved students studying their own communities. It culminated in a tour of either the northern or southern section of western Augusta County for all ninth graders and the production of a book of student work.

The data sources used to monitor progress toward the goals were the ninth grade students, who responded to pre-unit questionnaires and post-unit reflections, and the team teachers' observations and reflections. Teachers used this information to make changes in the unit and to determine what skills students seemed to have mastered and which skills needed to be reinforced.

Year Two

The second year with the AEL project brought changes and improvements. A third SEAL team (Team C) was formed. Team A and B had students heterogeneously grouped, but Team C was composed of twenty-five students who had not passed the Literacy Passport Test (a requirement for graduation). Team A used a parallel style of integration relying more on teaching content. Units taught in year one were revised and repeated with the addition of a unit on area geology. Team B worked with an integrated model for most units. Revised units from year one and a unit on gems of Latin America were taught. The European Band Tour unit was successfully repeated with displays being exhibited at Showcase 1994. (Showcase 1994: A Celebration of Excellence was a school wide ITI unit that highlighted a project, paper, or video form every student.) The members of Team C, working with the academically needy students, used an integrated approach that met both academic and social needs. An important unit for this group was "I'm Good Stuff," a transdisciplinary unit that focused on self-esteem. The Augusta County units were repeated by each team, but the focus shifted from a study of history and geography of the area to a study of community issues affecting the area.

The data sources used to monitor progress toward goals were the ninth grade students and the teachers of the three teams. The instruments used included pre-unit activity sheets, post-unit reflection sheets, and a student survey.

Team B and Team C used an extensive data gathering system: a teacher facilitated a post-unit reflection exercise in which students listed elements which would sustain and improve the units. Students also included suggestions for modifying the unit and listed ten facts/concepts/skills learned while engaged in the unit. Using student reflections, team teachers made a list of problems and promises and made changes to the unit. For example, after analyzing reflections, teachers made changes

to an assessment rubric. A teacher then shared these problems, promises, and changes with the students. As students gained experience in working in ITI units, teachers added a pre-unit activity to allow student input in designing the units.

Team A used a less structured system to gather data on each unit: a student survey with yes, no, and why questions was used for feedback after the unit was completed. The team teachers read these surveys for problems and promises. A reflection session for the team teachers also revealed problems and promises. Using these results, teachers made changes to the unit.

Ninth Grade Survey

Teachers administered the survey to ninth grade students who were participating in the second year of the AEL project. The survey results highlighted the fact that a large majority of students (98 percent) liked the block scheduling. The most liked aspect of the program was the amount of freedom students received in order to successfully accomplish their activities. Most students did not perceive the block scheduling as having any influence on their absences, tardies, or behavior.

The survey provided an opportunity for students to give comments about their experiences in the program and about their thoughts concerning the program. Most mentioned increased creativity as one of the most positive aspects of the project. Participants saw this creativity exhibited through the use of the computer lab, through the decisions being made by the students themselves, through getting ideas from one another, and through being forced to try new ways of accomplishing tasks. Additional comments dealt with knowing how to do research better, how to get along better with their classmates, and how to feel better about group work.

One area that received many comments dealt with self-esteem. There was an almost even split between students who saw the block as always or usually increasing self-esteem (48 percent) and those who saw the block as sometimes or never increasing self-esteem (47 percent). Some of those who saw it as sometimes or never increasing self-esteem commented that there simply was no change in their self-concept. Others said they could not judge whether their self-esteem had increased because they had been doing these same types of activities since the sixth grade. Students mentioned their increasing confidence to speak in front of others, their feeling comfortable asking others for help, their knowing they can accomplish things successfully, and their being able to answer their classmates' questions.

General comments about the project included both positive and negative aspects. Students made more positive comments than negative ones. Positive comments included the chances given to work with friends, the fun experienced while working in groups, the opportunity given for students to get and use knowledge needed in the real world, and the variety of activities breaking the routine of the school day. Areas students expressed concern about included the loss of content, the stress of evaluating peers, the fair distribution of work assignments, and the fact that students often must work with uncooperative peers. (See Appendix A for ninth grade survey.)

Tenth Grade Survey

Teachers administered the survey to all tenth grade students who participated in the first year of the AEL project. The survey results highlighted the fact that a large majority of students (90 percent) liked the block situation and activities at times during the year. At the same time, the majority of those surveyed (59 percent) did not want to see the ITI approach extended beyond the ninth grade.

The survey provided an opportunity for students to give comments about their experiences in the program and about their thoughts concerning the program. Not all students chose to make comments: however, from those who did give their opinions, there was an almost even split between the positive and negative responses concerning ITI.

Some of the positive comments focused on the opportunities to share ideas in group work, to learn more, and to work with heterogeneously grouped students. Other comments were tempered with suggestions for successfully continuing ITI: working in the block is good as long as all members participate and accept the responsibility of completing their assignments; participating in ITI is a positive experience, but more explanation of topic integration is needed; being in ITI is helpful when first coming from the middle school, but staying in the block is not needed for an entire year. An equal number of students commented that their grades had either improved or declined due to ITI.

Some of the negative comments focused on ITI being too much like middle school, wasting too much time, being too easy, and causing students to be segregated from the rest of the school population. (See Appendix B for tenth grade surveys.)

What have I (teacher) learned about myself?

First of all, the teachers who worked together held a mutual respect for one another, therefore they enjoyed working with one another and valued "the wonderful quality of who they worked with and who they were." Furthermore, all agreed that learning about each other's subject area and realizing that "good teaching and real learning matter to each" was a universal comment. Most of the teachers expressed their concern at one time or another about the loss of content in their subject area due to the integration. At times they tended to fight for their subject and were unwilling to give up their class time for ITI. For another teacher the most rewarding was the respect for his colleagues. He used their knowledge and expertise to create ITI units. Overall, teachers appreciated block time because it provided flexibility to experiment with longer periods of time. Instead of being locked into 48 minutes they now had as many as 144 minutes for teamed instruction. Also, teachers claimed that common planning time first period in the morning was essential. In addition to the daily common planning time eight days of release time throughout the school year was helpful. During the first year of the SEAL program teachers were more spontaneous in their approach to developing the units because of a large planning room where all teachers had their desks. The second year a smaller space was used for planning which prohibited all teachers having their desks in the room.

One teacher summarized the feelings of the group by saying, "I know this type of interactive teaching has increased my sense of efficacy and my level of job satisfaction. I enjoyed the camaraderie that went with teamed instruction as well as opportunities to share decision-making responsibilities on hectic days. I collaborated with my teaching team on areas of scheduling, time-lines, discipline approaches and in

providing extra help for students. Second, I enjoyed learning about other subject areas and how they interact with science and teamed instruction. This approach has offered new avenues for me to express my creativity. Third, I have enjoyed teaching more as I become less the fountain of knowledge and more the facilitator of kids using their own ingenuity, imagination, and creativity to learn."

For yet another teacher, authentic assessment sparked an interest. Outlining tasks, setting standards, holding students to those standards, and experimenting with various rubrics to fairly assess the students abilities was a plus. From these activities students learned how to work cooperatively, share tasks, draw upon their strengths and weaknesses, and become better problem solvers.

Most of the teachers embraced change and concluded that a more holistic approach to learning is required. Furthermore, they wanted administrators from the Central Office level down to the school level to provide a clear vision that would drive programs toward a common goal for more than one or two years.

Some teachers struggled with the loss of content. One teacher commented, "frequently I am dismayed when the project is over and little new knowledge has been acquired, or the new knowledge is incomplete, fragmented, and not yet a part of the big picture." On the other hand, "I see students learning how to be leaders and what to expect of leaders. I see them learning the importance of responsible and dependable followers, and I see them learning the necessity of being at school when your team needs you. I hear them commenting about such intangibles as attitude and quality."

<u>What did you learn about your students?</u>

The following statements summarize how students were perceived by the teachers:

* Students tire of any approach over time
* Students respond more to teachers than activities in the long run

* Students demand limits and structures to work from and respond if those are clear from the onset
* High achieving students resent pulling the weight for the lower ability student
* Higher ability students complained that the pace of the class was too slow
* When the extremely low are pulled out the higher ability students have their standards raised and the needs of the very slow may be addressed more effectively
* There were fewer discipline problems
* There were fewer students absent during group activities
* Students who usually do not perform did perform because of pressure from students in their groups
* They do not know how to work in a team/group situation
* They do not understand leadership skills/techniques
* They like working in small groups or best with partners
* They are trained to sit in rows, keep quite, and take written tests
* They are very insecure if not given the "how" of all work
* Students enjoy learning if units are good ITI units
* Students have been able to relate the disciplines better
* Marginal students have improved by working in groups with block time
* Students can be trained to learn in many ways
* Students need to be involved in the learning process
* Students learn from each other

What were your accomplishments?

As a team we were able to work through the process, stay friends, and grow more efficiently as a staff. We developed many useful units which we will always use and incorporate in our curriculum. We learned a great deal of educational theory and jargon. We put together some projects as teams which were unable to be accomplished by an individual classroom teacher. Also, we served as a model for the area and our county in using teamed instruction.

What were your obstacles?

A year before we became involved with AEL we had embarked upon a philosophy we called subject enhanced approach to learning. This philosophy did not mesh with ITI, therefore a struggle began that in reality we never overcame. In addition to this struggle was the framework of the high school curriculum and the emphasis placed on covering a certain amount of content for credits. One teacher

noted, "for disciplines to lose their content and uniqueness in a mystical union of a humanities course is still almost heretical to those of us who truly have a love in teaching--that of our kids first, and our subject as second."

What will you do differently?

Most teachers said they would use some of the units and the expertise of the others which they have now learned to garner more easily from one another. They agreed that they would use ITI as a means to the end of better teaching---not the means, and definitely not the end.

Another teacher said he would set tasks, establish standards for work, be more performance oriented, use more authentic assessment tools such as rubrics, portfolios, oral presentations to utilize the material learned.

What is the future of ITI at your school?

Some ITI units will be continued in the future. We have retained our block schedule in the ninth grade which will allow for the flexibility for teamed instruction. We will continue learning and using authentic assessment measures to evaluate student learning. One of the schools in our school system is experimenting with the 4.0 semester schedule next year. We will decide if we want to use the semester schedule the following year.

What resources and assistance were particularly helpful?

The eight days of release time to work on projects were the most helpful aspect of this project. This time allowed teachers uninterrupted time to plan, evaluate, and reflect. The summer institutes were informative and were followed with a continual flow of articles and newsletters which highlighted aspects of the workshops and provided additional information to be implemented in the ITI process. We were able to use much of the information learned from the summer institutes and the readings to provide staff development for our school and others in our county.

What recommendations/advice would you give to others who wish to use ITI?

The ITI philosophy should be the central congruent force underlying the school's vision for a five year period of time. Administrative support and understanding of this vision is essential. Teachers should be chosen who are committed to this philosophy of education. Teams of teachers need to be well matched and it would be helpful to have teachers who possess a wealth of knowledge in their subject areas. Above all else, a common planning time is essential for teachers to plan units together. Release time during the school year would be helpful for continued planning and reflection, and summer planning would be very helpful in getting an overview of the year's plan, rather than working piecemeal throughout the year.

It is essential that those involved understand that change takes time and causes conflict, but can be overcome. The vision should guide the teams through this conflict by providing a clear path to follow. Through it all it is necessary to try new techniques, build on those that work, and revise those that do not.

One teacher summarized our thoughts so beautifully when she said, "all of us---teachers, students, and administrators---are finding that learning is not just a brain thing; it is a heart thing as well. The more we care about whatever it is we are learning---the more emotionally involved we are---the more successful we are; and the more students get involved with the learning process."

APPENDIX

Combination of All 9th Grade Students Presently in the Block

The questions in this survey ask you about your ninth grade year at Buffalo Gap High School and specifically about the block you were in. As you answer them, think about the entire year. Your honest comments on this questionnaire *will help plan for future ninth grade classes.*

Please check the column that best describes your thoughts and feelings. Several questions at the end ask for an explanation.

EXPRESSED IN PERCENTS

	Always	Usually	Sometimes	Never
Do you like block scheduling?	33	51	14	.7
Do you feel being in the block helped you adjust to high school better?	28	38	22	10
Do you like block activities?	30	48	21	.7
Do you like working in groups?	51	33	14	2
Were you a productive group member?	35	55	8	.7
Do you think you were graded fairly?	39	48	11	.7
on activities?	49	41	10	0
on presentations?	47	36	16	.7
on group work?	47	38	14	.7
on tests and quizzes?	46	38	12	.7
Do you like planning you own work schedule while working on block assignments?	49	32	16	3
Did you enjoy the freedom to move from classroom to computer lab to library while working on block activities?	85	12	3	0
Were you able to meet deadlines on block assignments?	21	55	21	3
After block experiences, do you feel comfortable presenting information in front of a group of people?	14	38	31	17
After block activities, can you use the library to find information needed for an assignment?	22	58	19	1
Did you feel an obligation to your group to participate in group work?	49	42	8	.7
Did being in the block influence the number of times...				
you were absent?	14	10	12	64
you were tardy to class?	16	6	12	66
you were referred to the office for a discipline problem?	13	5	5	76

	Always	Usually	Sometimes	Never
After block activities, do you think you can design, type, and print an assignment in the computer lab?	55	32	11	1
Have the projects and group work you have done within the block increased your creativity?	21	44	24	8

Please explain.

Has being in the block increased your self esteem?

17	31	24	23

Please explain.

If you are assigned to a group of people you have never met, do you think you have the skills to be an effective group member?

24	42	25	9

Please explain.

Have you been able to see the relationships between the subject matter taught in World Geography, Science, and English?

26	44	26	3

Please explain.

Additional Comments:

APPENDIX B

PLEASE RESPOND TO THE FOLLOWING SURVEY BY PLACING A CHECK IN THE COLUMN OF YOUR CHOICE. BE HONEST IN YOUR EVALUATION

		ALWAYS	SOMETIMES	NEVER
1.	I liked having my English, Geography, and Earth Science blocked together last year.	16	74	9
2.	I think the blocking made the transition easier from middle school to high school.	21	52	27
3.	I liked the way my classmates and I were grouped during the first semester last year (homogeneously).	44	41	15
4.	I liked the way my classmates and I were grouped during the second semester last year (heterogeneously).	19	49	32
5.	I liked the block activities last year.	22	70	7
6.	I think that the content covered last year in the block classes was important.	22	59	18
7.	It seemed that my teachers worked very hard last year to prepare for the block activities.	50	40	10
8.	I think that I behaved better when I was in the block situation.	15	58	27
9.	I think that my attendance was better when I was in the block situation.	23	53	23
10.	I was aware of what the other block was doing throughout the year.	8	49	43
11.	I would rather have the team block approach this year.	16	29	55
12.	I like the way my classes are scheduled this year rather than last year's blocking.	59	38	3

SEAL UNIT

TITLE: Community Issues in Augusta County

AGE/GRADE: Ninth grade

SUBJECTS: Earth Science, English, World Geography

TIME LINE: Two weeks of block time

CONCEPT: To make the students aware of community issues and to help them become problem solvers by working with these issues

OBJECTIVES:

Students will be able to:

1. Review issues
2. Identify problems
3. Work effectively in collaborative groups
4. Exhibit leadership skills
5. Write questionnaires
6. Conduct surveys
7. Use reference materials
8. Conduct one-on-one interviews
9. Conduct phone interviews
10. Prepare a manuscript
11. Use computer skills
12. Compile researched materials
13. Peer edit
14. Make oral presentations
15. Draw maps
16. Make future projections
17. Interpret maps and charts

MATERIALS: IDEAL problem solving method, Augusta County maps, soil survey booklets, Virginia geology reference books, Augusta County history books, topographic and geologic maps, rock and mineral identification guides,Fact Book and Guide to Augusta County (supplement to local newspaper), Augusta County Comprehensive Plan

RESOURCES: Community members, family members, local government officials, local business representatives

METHODS:

Day 1: Students are introduced to the Community Issues in Augusta County unit. An overview and the intent of the unit are discussed. Students brainstorm with classmates about the communities in which they live. Students are to research their areas' geology, history, culture, and economy and to survey members of their families, friends, and neighbors about their communities. Students are to bring in written information to share with the class.

Day 2: Students compile information researched. Students write a geological interpretation of their communities, draw a location/strip map for their locations, and prepare a socio-economic report of their communities. Students use all resources available including the Media Center and computer lab.

Day 3: Students continue working on the writing assignments from the previous day.

Day 4: Students complete writing assignments. Students discuss community issues they noticed while working on this project. Students make a list of these issues, prioritize them, and select a specific issue to study. Teachers compile a list of the issues chosen by the students and assign students to study groups.

Day 5: Study groups meet to begin work on community issues. Students organize their group and assign tasks. Group members brainstorm about the problem and write a formal statement of the problem and suggest possible solutions.

Day 6: Group members prepare a five question interview to be conducted with family members and neighbors. Teachers compile a list of contact persons for students to interview and invite them to visit the school. Group members prepare a list of questions to use while interviewing the experts on the issues.

Day 7: Experts visit school and meet with students. Students conduct interviews and note responses given to their questions. Telephone interviews are conducted with experts unable to visit the school.

Day 8: Using information from group brainstorming, researching resources, community interviews, and responses from experts, group members formulate and prioritize solutions to the issue studied. Pros and cons are given for each solution.

Day 9: Group members draw a future map of their community. Students continue working on solutions' assignments using the computer lab.

Day 10: Group members compile all information about the issue and prepare a final report. Groups give a short oral presentation to the class. Teachers place all reports in a notebook.

STUDENT ASSESSMENT:

Teachers gave grades on written reports. A group and individual grade was given on the final notebook using an assessment checklist completed by students.

UNIT ASSESSMENT:

Promises: The students learned more about their communities and some of the community issues facing them and their parents. They learned some of the frustrations of adult problems and how difficult it is to solve them. The students enjoyed meeting and talking with people of authority. The students now know more about researching an issue and solving a problem. Some comments were "I learned a lot about my problem and a lot about some other problems in the county. It was a very good way to help us get what we needed to know about the problem to do the solution model" and "I liked talking to the people personally and one-on-one about the problems in this area. I thought the people were very informative and gave us good information about what we asked."

Problems: Few problems surfaced during this unit. Some problems occurred with group work but were easily managed. Students felt that not enough computer time was allowed to complete projects. Most of the problems occurred with the interviews. The students felt that the groups were too large and some interviewers could not be heard. Some experts did not attend at the last minute creating a problem for that group. Most experts were informative, but a few skirted answers. Some experts interviewed on the phone did not take the student seriously. Some students felt more information on interviewing was necessary.

The IDEAL Problem Solving Method

I Identify the Problem
- < Written paragraph with thesis statement and closing sentence
  - ~ Why your group chose this problem
  - ~ May be personal - what you would like to see done

D Define and Represent the Problem
- < Formal paragraph stating all aspects of problem
  - ~ Define the boundaries of the problem
  - ~ Consequences of correcting the problem
  - ~ Consequences of not correcting the problem
  - ~ Effects of problem on the people
  - ~ Effects of problem on the community
  - ~ Effects of problem on land

E Explore the Problem
- < Research the problem
  - ~ contact professionals - report findings
  - ~ Check newspaper articles, pamphlets, and maps for information
  - ~ Contact other counties to see what has been done
  - ~ Interview community members - tabulate and report findings

- < Formulate Solutions
  - ~ Outline sensible solutions to the problem and describe the pros and cons of each
  - ~ Prioritize solutions

A Act on Chosen Plan
- < Choose best solution
  - ~ describe it fully
  - ~ describe its implementation

L Look at the Effects
- < Paragraph stating long range effects of plan
  - ~ effects on people
  - ~ effects on community
  - ~ effects on land

Community Issues in Augusta County
Theme: Problem Solving

Subject	Content	Skills	Activities
English	Communication Reading and Research Writing Computer Skills	Telephone etiquette, interview techniques, folklore telling, oral presentations, using reference materials, using community resources, reading historical accounts, letter writing, development of paragraphs, development of interviews, expository essay writing, peer editing, keyboarding, word processing, graphics design	Telephone etiquette role playing and phone calls to businesses. Modeling of interviews, preparation of questions, interviews of community members -government officials, transcribe interview information. Retelling and recording of legends from the locality. Student presentations of speeches, papers, and videos, with critique of presentations. Locating, reading, evaluating, and analyzing reference materials including newspapers. Peer editing of essays. Use of computer to prepare final paper
Earth Science	Topography rivers and tributaries, watersheds, flood plains mountains, valleys, gaps geological provinces Geology mountains, valleys rock types, rock formations caverns, quarries, and mines natural resources Interpretative geology usage of natural resources influence of geology on jobs influence of geology on settlement patterns problems related to geology	Map reading, Constructing models, Research scientific literature, Field study of geology Use of computer, Identifying rocks and minerals Synthesizing information	Discuss Virginia geology and topography using various resources Identify topographical features and landmarks of Augusta County Investigate home community to locate geological features Identify rocks and minerals found in Augusta County Locate soil type using Augusta County Soil Survey booklet Make a relief map of Virginia Use computer to prepare final product Write paper on area geology synthesizing researched information
World Geography	History primary/secondary sources, background, future projection Culture isolation,community,background,evaluationof component factors Economics business patterns, standards of living, job markets, labor Geography mapping, physical features, settlement patterns and influence Sociology community resources, background, values and religion	Map reading, Use of topographical maps, Use of primary/secondary sources, Prioritization, surveys, Interpreting statistical data, Map design	Write a cultural/economic history of family Brainstorm and then prioritize present/future concerns of area Write a projection of the future in your area Sketch or draw prominent building/landmark of area Discuss family origin/background and construct family coat of arms Obtain statistical information on area Conduct phone and personal interviews with business persons Identify employers/resources in area and evaluate the job market Research origins and naming of roads Survey area residents and prioritize values of area

APPENDIX C

NELSON COUNTY HIGH SCHOOL

INTERDISCIPLINARY TEAMED INSTRUCTION

AT NELSON COUNTY HIGH SCHOOL

A REPORT TO THE

APPALACHIA EDUCATION LABORATORY

COMPILED BY:

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INTRODUCTION

Situated in the heart of Virginia, Nelson County is a small, mainly rural county that stretches from the Blue Ridge Mountains in the northwest, to the James River in the southeast. Set in its center about three miles south of the county seat of Lovingston, Nelson County High School (NCHS) is a Virginia High School League AA school with an enrollment of 650 students in grades 9-12. Our students come from a variety of social and economic backgrounds. Our racial make-up is approximately two-thirds Caucasian, one-third African-American, and a small population of Hispanic origin. Post-secondary education in some form is pursued by 50% of our graduates, and 70% receive some on-site vocational education. The high school offers a wide variety of classes, with different levels of interest and difficulty, designed to challenge a diverse student population. Within our building, we run the gamut from TMR/EMR self-contained classes, to block vocational and alternative education programs, to four Advanced Placement offerings.

With administrative leadership, our faculty has recognized the ever-changing demands of society on our students, and has sought to continually re-evaluate and update our curriculum and instructional methodologies. In the spring of 1992, we began the process of restructuring the high school by initiating discussions to develop a common vision for the school. Staff members have been encouraged to create innovative instructional programs that would anticipate new challenges to public education.

With such ideas in mind, a group of teachers approached the administration with a plan for an interdisciplinary ninth-grade curriculum using teamed-teaching methods.

PROGRAM DEVELOPMENT: YEAR 1

The idea for interdisciplinary teamed instruction at Nelson County High School (NCHS) began during the 1991-1992 school year with a relatively simple premise:

> If interdisciplinary teamed instruction is a better way to engage students and get them actively involved in their education, then it should become part of the core curriculum for students, not extra- or co-curricular. And nowhere in the tradition high school curriculum does it make more sense for the teachers and students than in the ninth grade, the beginning of high school.

Using this idea, four teachers from NCHS conceived the idea to build a program of study that would change how students would learn the required subjects of language arts, mathematics, physical education, science, and social studies, and would include fine arts. The idea of the program was to allow a student to choose a different curriculum for the required courses for the ninth grade.

We quickly realized how enormous a task integrating five or six subjects would be, so we scaled down our work to concentrate on just four subjects: language arts, mathematics, science, and social studies. We also agreed to infuse the fine arts into our curriculum whenever possible. We approached our administration with this idea, and gained their support for continuing our work. In the spring of 1992 the Director of Instruction worked to gain our inclusion in the Appalachia Educational Laboratory's (AEL) two year project in Virginia supporting the development of Interdisciplinary Teamed Instruction (ITI).

Our goals within this project were:

1. To create a curriculum beginning in the ninth grade that would integrate the four subjects of language arts, mathematics, science, and social studies;
2. To design, plan, and implement this curriculum using a team of teachers from the four subject areas, with input from teachers in other subjects;
3. To design the curriculum in such a way that students would become more actively involved in constructing their knowledge;
4. And, to provide alternative forms of assessment, including the building of student portfolios.

Our plan for the first year of the NCHS project was two-fold: design a curriculum to teach and sell the program so that we could teach it. The administrators and teachers all felt strongly, that a planning year was needed to get such a large-scale program off the ground. While this year was effective in terms of curriculum development, we found it difficult to keep a team together and focused through time. We lost one of the original members during the summer of 1992, and another in the summer of 1993. We were fortunate to be able to replace these two with able, enthusiastic teachers. (In the fall of 1992, three teachers of language arts, science, and social studies were given two back-to-back planning periods for the purpose of developing an ITI program to start in the fall of 1993. We were joined for one period by a mathematics teacher.)

Some of the frustrations of this planning year, 1992-1993, soon became obvious. We spent much time devising ways to sell the program, and not enough time writing curriculum, a task we were trained to do and eager to undertake. We developed a number of activities to "sell" the program:

1. Wrote and developed descriptions and data to secure grant funding for our program. Since we work in a poor county, we wanted more resources to make the program successful. Also, we met with grant writers and administrators to find out how we might get funding. We were unsuccessful in this endeavor, largely because we did not have prior knowledge of how to go about applying for grants.

2. Wrote and developed program vision statements, outlines, objectives, and rationales. These were revised and presented to school administrators, fellow teachers, the school board, and parent groups.

3. Published a brochure of the program for distribution to parents and students.

4. Interviewed for the newspaper, and attended meetings that involved the high school or parent groups.

Our inability to secure grant funding was an activity that brought much frustration, but one that we should have anticipated. Poor, rural school systems without the services of a grant writer within the system simply cannot compete with systems that employ people to write grants.

Our development materials and oral presentations were useful to us in terms of defining and refining the program. Reactions and input from the various groups allowed us to work toward a

feasible model that still included our original goal of a restructured ninth grade core curriculum. Teachers and administrators wanted to know instruction and assessment methods we planned to use, and ways our program would affect other programs. Parents were generally interested in what the curriculum would contain, what credits their child would receive, and how this program would be viewed by college admissions personnel. We became more skilled in expressing our goals for those areas of education that went beyond instruction. The teaching aspects of an integrated curriculum became more clear as we developed a coordinated sequence of essential skills for the four disciplines. The model for the program continued to evolve, as we became better at explaining how it should work.

In terms of instruction and curriculum, the program was not difficult to explain and defend. Four teachers in language arts, mathematics, science, and social studies would team plan, instruct, evaluate, and counsel students enrolled in a four period block of time. Students would receive four credits, required for graduation. The curriculum would not be drastically different from a traditional ninth grade program, but it would be presented in a vastly different way, and would be assessed differently.

The curriculum would be organized around a social studies framework in which important ancient cultures and their relevance to modern societies would be investigated. In the area of language arts, studies of world literature would parallel the history and geography of a particular culture. The science component would investigate the biological and physical sciences that were important and relevant to the time and location. Mathematics was envisioned as being a practical, problem-solving curriculum that integrated with the science and used outcome-based assessments.

Students would get instruction that was similar to "immersion" in the culture. Their investigation would include creating their own artifacts of that culture. The creation of these artifacts would allow students to use the mathematics, technology, art, and crafts of the time being studied. The artifacts, other project work, performances, writings, and traditional tests would form a portfolio for the student. This portfolio would be used to evaluate progress and would become a tangible record of achievement.

We chose the cultures for study in the first year based upon the traditional world history texts framework. It was also easy to find curricular materials (i.e., texts and support material) for language arts as materials for world literature abound. In the area of science and math, no such materials could be found, so the math and science team members designed a "textless" curriculum that integrated their subjects to the specific culture being studied. Writing a science curriculum was easier

because of the ease with which biological and Earth Science materials fit to an area of the ancient world. We found a limited number of good materials and activities for integrating math with science and social studies; however, a full year's worth of instructional material could not be found.

The problem with math also surfaced when the topic of credit for students arose. At present in the state of Virginia, scope and sequence of mathematics curriculum is very specifically defined. Students entering the ninth grade (or ITI) had a choice of four subject areas in math, and all were vastly different. Parents and students themselves wanted to know prior to taking ITI exactly what math credit would be awarded. While in theory it made sense to tell them "...whatever math you have mastered according to your assessments...", this was not an answer that they were willing to accept. To keep math in the program, and to enroll students in the program, it was agreed that students would receive the same math credit that they would have received in a traditional class. This would mean differentiating math instruction for four groups within the same class.

After registration of students in the spring of 1993, the size of the ITI class was found to be too small to justify all four teachers to team for the entire four period block of time. So, the teachers were assigned to ITI in two different blocks of two periods each. Social studies and language arts would team in one block, and mathematics and science would team in another. Some overlapping planning periods meant that some teachers might have access to students outside the two-period block, but essentially the teaming for instruction was cut in half. We had a common planning period at the end of the school day for team planning and student assessment.

PROGRAM IMPLEMENTATION: YEAR 2

Our first year of implementation was one of experimentation and education in how to deliver an interdisciplinary, teamed curriculum that was to integrate four subject areas (in two blocks) for 180 days of instruction. The ninth grade ITI curriculum at NCHS was based upon the ancient cultures of the world and their relevance to the modern world. This basis was designed to provide a focus, not a restriction, for instruction. Each teacher was free to adhere closely to, or vary from, this cultural emphasis within any given unit of study. We felt that it was essential to show modern connections for all subject areas, to allow teachers to utilize their particular strengths, and to include specific content that any teacher felt necessary. The broad cultural units that we developed (in order of presentation) were:

1. Mesopotamia and the Middle East
2. Egypt
3. Africa
4. The Americas
5. The Orient, including India
6. Greece and Rome
7. The Middle Ages

Each unit was designed to have artifacts, one ancient and one modern, that could focus instruction for the teachers and provide a tangible way for the students to make the connections in the interdisciplinary curriculum. We found that the team planning worked best when it focused on how we might integrate, not on how we would present specific content. This type of planning, while professionally rewarding and enjoyable, was time-consuming. The one common planning period that we were granted for ITI was absolutely essential.

EARLY DIFFICULTIES: Teaming and Facilities

Getting the ITI program started in the 1993-94 school year met with some problems that might happen to any program. In the summer prior to school, we encountered problems with teaming and preparing for implementation. Problems within the team of four teachers began to surface when we attended a summer institute sponsored by AEL. This schism worsened when we met later in the summer for eight days of curriculum writing. Ultimately, this friction resulted in the departure of one member, and replacement by another just weeks before the start of school. Fortunately, the new member had attended the AEL Institute during the summer because of his interest in ITI. Although he was given little time to prepare for interdisciplinary teamed instruction, he was familiar with the goals and objectives of the program.

Another prcblem that we faced upon returning to school was one of facilities, specifically classrooms that could accommodate larger group activities. The ITI rooms were not adjoining, nor was either large enough to fit all students. Since a large conference room could not be used on an on-going basis, we were forced to divide students into two groups and use two separate classrooms for most instruction. In order to keep students in proximity with some kind of access to each other, teachers had to switch classrooms throughout the day. Because we needed to accomplish both group and laboratory work in these spaces, individual student desks were inadequate. We ordered flat-topped, trapezoidal tables that could be arranged in various ways, but these would take several weeks to arrive.

The problem with facilities was compounded by that of each teacher only being sceheduled for two periods of the four period ITI block. Many of the plans that we made for enrichment, remediation, and differentiation could not be implemented. The cumulative effect was that the quality and amount of actual teamed instruction was limited. The teams of students, too, were limited in their access to a truly interdisciplinary learning environment.

CURRICULUM and INSTRUCTION

From the first unit of study, the limitations of space and scheduling created difficulties in integrating all four subject areas. We found in the first large group activity, student teams researching and reporting on the high school itself, the transition from one pair of teachers to another was awkward. Also, we found that students needed much training in actual teamwork, as opposed to group work. The curriculum itself hindered the fusion of all four subjects as an on-going method of instruction. While language arts and social studies easily fit with the beginning topic of Mesopotamian culture and artifacts, science and mathematics were not as adaptable to this as an introductory topic.

The methodology that we moved toward was one of parallel disciplines that were team-planned around the culture of study. In our planning, we concentrated on making interdisciplinary connections wherever and whenever possible. For example, in the content areas of science and math, students used ratio and proportion to create and use map scales. This skill was then integrated to the geography of Mesopotamia and the mythology of this culture by creating a map that portrayed the epic of Gilgamesh. These kinds of activities and lessons were interspersed with more traditional instruction. The language arts/social studies block found their subjects were very adaptable to one another, and to the math/science block.

Adapting traditional curricula and instruction to ITI was put to its hardest test in the subject of mathematics. We knew that the ninth grade curriculum was very compartmentialized by content and level, and that parents and students were concerned about what specific credit would be awarded in mathematics. We were not prepared

for the instructional hardships of trying to heterogeneously group these students, differentiate their instruction on four levels, and provide interdisciplinary connections relevant to each level. We finally decided to break the math/science block of ITI into two ability groups. This arrangement at least helped to relieve the problems of differentiation and relevancy. We continued to infuse lessons and activities that would mend this break. Two very good examples of this (that also provided for co-operative learning) were group activities using graphic calculators, and teaming of students for a Math/Science Day at a local amusement park.

STUDENTS and ASSESSMENT

Although the heterogeneous grouping of students posed problems for mathematics, we felt that the overall effect for teachers and students was positive. As examples above indicate, cooperative learning groups could be used extensively. Group projects, such as videotaping the epic of Gilgamesh or constructing a replica of the Great Pyramid, allowed students to contribute in various ways to a finished product.

Students did have to learn how to develop and create project material, whether it was individual or with a group. We met with some resistance to this initially, but we made it very clear to them that using their talents and interests to create their own artifacts was an important part of our evaluation of them in each subject area. We also demonstrated that we were there to help them create. Team planning of interdisciplinary projects also helped to mesh the subject areas for students. Venn diagrams by students to accompany their project work made it easy for us to assess the extent of their integration. Such attention to the student constructing his or her knowledge culminated in a field trip to the Smithsonian Institute's African and Asian Museums. With the help of teachers and peers, students chose, sketched, and researched art and artifacts in these museums, and created replicas of what they saw. This trip also provided us with the best transition to early American culture because students could visit exhibits in the Natural History Museum.

We found that students were making connections across the curriculum, not only in their project work, but also within the more traditional classroom situations. Team planning around a common topic allowed most students to carry information and ideas from one block to the next, and from one day to the next. They even expressed that, at times, "it all seems to fit." In the unit of Asia, students brought a better understanding of the science of volcanoes to science class because of an understanding of impact of volcanoes on many Asian societies. The modern social problems in this area became more vivid because of plotting population curves of some of the countries. Studying the solar system during a language arts unit on Greek and Roman mythology created greater interest in the planets and their legends.

Traditional assessment methods still dominated our evaluation of students, but other methods played a significant role when grades were determined. We began the project with plans for extensive alternative assessment.

One example of non-traditional learning and assessment grew out of a meeting with parents six weeks into the school year. During the meeting, some parents expressed interest in keeping up with the ITI program so that they could help their children with work on projects and possibly help us. They eventually suggested that a newsletter of some sort might help. We readily agreed, and the language arts and social studies teachers came up the idea for a newsletter that was written, produced, and mailed home by the students themselves.

DATA ANALYSIS AND EVALUATION

In order to evaluate the progress of ITI-9 in its first year of implementation, members of the team created two surveys-one for students in the program and one for their parents. The surveys contained similar questions about recognizing and rating certain aspects of ITI. The student surveys were distributed in class, so the tabulations reflect 100% return. The parent surveys were mailed, and 48% were returned.

With regard to the program in general, 84% of the students rated it as very effective. In their comments, students said they could better relate the four subject areas, and believed they could understand material better than in a traditional course of study. They felt that homework was better planned, and that the teachers were sensitive to "homework overload." They mentioned the value of projects receiving credit in all subject areas, and said that this plan increased their understanding of the culture as a whole. Some recognized a better student/teacher relationship. They knew that we met daily to discuss their individual needs and behavior.

Hands-on and large-group activities rated highly, and students wanted more field trips and cooperative learning groups. Other suggestions included combining science and math more effectively, and receiving more individual attention. Some students stated the belief that ITI was less difficult than a traditional curriculum even though they thought they were learning more. They cited not only learning more from traditional text materials, but also from working with others. Most of the students (80%) wanted the program to continue in the tenth grade.

The parents' survey expressed appreciation for the work of the team members. They indicated that the program needed more students and should be expanded. Most believed that their children seemed to be learning more, were more enthusiastic about their work, and had a better attitude toward education. Some mentioned a positive influence on their child's confidence and self-esteem. They also asked us to continue integrating the subject matter, and refining what we had started. Their suggestions included getting more information to them on a regular basis, and working to bring math more into the interdisciplinary nature of the program.

The ITI team found nothing unexpected after tabulating and discussing the results of both surveys. They did reinforce a need that we saw to act on several key issues. First, ITI program should be offered again in the ninth grade, and one should be developed for the tenth grade. Secondly, the role of mathematics in the program must be revised. In general, we were pleased that parents and students wanted this program with such curriculum changes to continue, and they wanted it to improve and expand.

CONCLUSIONS AND THE FUTURE OF ITI

The greatest challenge for any new program, such as ITI at Nelson County High School, is to build upon what has already been initiated. Our two years of work have demonstrated to us that some of our ideas worked very well, while others still need change. We feel strongly, and our evidence supports the contention, that students like the program and are benefitting from it. The generally favorable response from parents also helps us to continue.

We believe that we have started a curriculum with new instructional methods that can be refined and improved. We know that we need to work specifically on teamed instruction and on increasing and improving alternative assessments. We also want to move toward having students become more active in building their knowledge and developing portfolios of their work. It is vital that we work to provide more enrichment activities and to increase the use of modern technology. It is important that the students who started in this program be allowed to continue in a similar one next year so that they can build upon what they have accomplished. It is also important that we become more involved in the counseling of eighth grade students. They need to be properly informed and encouraged if significant numbers are to be attracted to a program which is new, very different, and perhaps more challenging than anything they have attempted before.

Keeping prospective students informed is essential because ITI will continue to change. Although we will continue with virtually the same vision and objectives for the ninth grade program next year, the obstacles of offering mathematics as a credit within the block program have forced us to remove it. ITI will be offered next year as a three period block with credit in language arts, science, and social studies. Though credit has been dropped, mathematics as an integral part of the curriculum will continue. The math teacher will remain as part of the team being utilized in particular for planning and resource. The math activities and lessons developed by the team will be infused into the revised ITI curriculum, and we will work to bring mathematics back as a credit. The team will remain the same with a common planning period.

Due largely to their success with the ninth grade program, the language arts and social studies teachers will team to offer a tenth grade program of Western Civilization which will combine modern history and world literature. This two period block has attracted many students from within and outside of ninth grade ITI. Such interest by students, as well as feedback from parents, encourages us to keep working and expanding the ITI program in this way. In the future, this block may include science, but no teacher could be found to integrate a second year of science into an interdisciplinary program.

The problem with developing tenth grade curriculum mirrors a larger problem with ITI in general at NCHS. If the present program is to continue and expand, more teachers and more teams are needed to provide new ideas and more integration. If a program of interdisciplinary teamed instruction and a restructuring of the high school are visions for Nelson County, then not only are more teachers needed, but more administrators and parents must actively encourage and support efforts of teams of teachers to make connections between all disciplines. We feel that continuation of this program of interdisciplinary teamed instruction provides students with a truly innovatiive option to the traditional required curriculum of the ninth and tenth grades, and prepares our students to be actively involved in their education. We also believe that when teachers pool ideas and resources to get students working in relevant, integrated curricula, students will make connections and benefit from the experience.

ADMINISTRATIVE OBSERVATIONS REGARDING ITI IMPLEMENTATION

Administratively, one of the challenges facing us with the implementation of the ITI program at our school was adjusting the master schedule to accommmodate the ITI teachers being teamed for four instructional periods of the day. Our school is small with approximately fifty-five staff members, working on a seven period day. Currently we have in place two other interdisciplinary programs in additional to ITI. These programs-Humanities, an eleventh grade two block course teaming two teachers and ALPHA, a three block alternative education program teaming four teachers-were already part of our instructional program prior to 1992. Therefore, during the summer of 1992 we realized after much discussion and revison of the master schedule that we did not have the staffing needed to assign four additional teachers to team four periods a day with an additional unencumbered team planning period. The compromise effected, with the assistance of the ITI team members, was to have two ITI teachers at a time assigned to two instructional periods, with overlapping teacher planning periods. In this manner, all but one of the ITI team members had access to the ITI program three of the four class periods. The team still had a common planning period the last class of the day.

As indicated earlier in this report, the room assignment for the ITI program was another challenge we faced. We did not have available one large room in which all of the students could meet daily. The two classrooms provided were not connected and posed problems for group movement. The ITI team did an admirable job of adapting to the available space. Unfortunately, the lack of a common meeting room on a regular basis did hamper their efforts for large group instruction. For the 1994-95 school year, the group will still be housed in two classrooms, but one of the rooms will be large enough to accommodate a science lab.

The real challenge facing this group of teachers, however, was the actual teaming process itself. As stated earlier, it was apparent in the summer of 1992 that the three original members of the team personally had very different approaches to working in a teamed situation. The group dynamics were such that team discussions often bogged down on philosophical questions and forward movement became very difficult. One member was replaced and another member added in the fall of 1992. Even with these changes, the teaming process - the need to assign roles within the group, the need to develop a common vision, team goals and timelines- was one of the major challenges faced by this group during its planning year. The AEL coordinator was invaluable in her assistance in working with these teachers and the administrators in developing and improving teaming skills. Without a doubt, a year of planning prior to the actual implementation of any instructional program is essential to allow the individuals time to learn to work together as a team in a coordinated, cohesive manner.

We are justifiably proud of the efforts of the ITI team and we hope in the future to expand this program in some form to include all ninth graders.

Timeline: ITI-9 Nelson Co. High School

Fall 1991	Teacher approaches principal about restructuring and obtains permission to proceed. Members of different disciplines are recruited for program and discussions begin.
Spring 1992	Proposed program and lesson is presented to principal Applied / Accepted to AEL program
Summer 1992	Team of three plus vice-principal attends AEL summer institute - Charlottesville, Va.
Fall 1992	Team obtains a two period block of common planning for program Math begins to be a problem. Original teacher leaves. New teacher assigned. Development of vision, goals and curriculum outline Search / selection of teaching materials
Spring 1993	Essential skills and sequencing developed Marketing of Program: Create presentations for administration, teachers, parents and students Student recruitment and enrollment
Summer 1993	Summer Institute by AEL at Mt. Lake, Va. Teaming Eight days of curriculum writing Change in team membership

- Administrative constraints: Change in number of students, block time, planning periods not overlapping
  Physical problems: Tables, chairs, and location of classes

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Fall 1993	Initiate program with 41 students Modified instruction: lack of overlap with teachers, return to traditional methods, teach students t team properly Unit on Mesopotamia
Fall 1993	Workshop with AEL on projects. Planning Units on Egypt, Africa, and Mesoamerica Parent meeting: challenging certain students, keeping parents informed (Newsletter) Students talking more at home about their learning Working field trip to D.C.: All subjects planned for and followed up
Spring 1994	Parent and student surveys handed out and reviewed Units on East Asia, Greece / Rome Working field trip to math / science day at Kings Dominion Unit on the Middle Ages Math dropped / adjusted for '94 - '95 school year New class, Western Civilization created for tenth grade students (2 period block - modern history and literature)

9th Grade ITI Unit Title: African Civilizations Time: First Semester 3 - 4 weeks

World History

- Early Civilizations
  - Geography shapes history
  - Bontu migrations
  - Agriculture relationship
- East Africa
  - Kingdom of Kush + Aksum
- Trading Empires
  - Ghana, Mali, and Songhai
  - Kongo and Mwene Mutapa
- Oral traditions + trading languages
- Religion: Old and New beliefs
- European contact + growth of slave trade
- Partitioning of Africa and European Rule
- South Africa: Linking the Past to the Future
- African Art forms - D.C. trip to Smithsonian

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Language Arts

- Introduce Artifacts: Omu skulls, figures, ancient weapons, tools, rock printings etc. Modern minerals, metals, stones
- Griots: Africas Living Libraries
- African Proverbs
  - Writing illustrated proverbs
- Suggested Readings: HRW
  - "Song of Mother to Her Firstborn"
  - "Ogun Kills on the Right"
  - "Talk"
  - Sundiata
  - Modern Literature
- Composition
  - Fable, modern poem + chant
  - Comparative Essay
  - Writing a newspaper account
- Suggested projects
  - Research paper
  - Mural: Uses of Iron
  - West Indian Festival
  - Proverb charades
  - Invent Oral Tales
- Movie: Mountains of the Moon
  - Research and discuss Burton and Spekes search for the source of the Nile and the complications that arose

Science

- Observe and create different types of maps and map overlays, specifically topographic, vegetative (biomes), and climatic.
  - Construct map of journey up Nile and color coded map of major biomes
  - Essay on journey and how topo, climate + veg. would effect
  - Field project: create map
- Identify types of organisms in a given community and hypothesize the role(s) of each: define producers, consumers, decomposers, herbivores and carnivores.
  - Video: African savannah and wildebeest
  - Field trip: scavenger hunt and ID of organisms in the Natural History Museum, D.C.
- Suggest and give examples of specific organism relationships
- Food chains and webs
- Observe, experiment on and predict the result of load (weight) on the function support structures, specifically using buoyancy for boats and stress tests various materials.
  - Lab: Measuring density
  - What makes best raft
- Observe the properties used to identify minerals, manipulate and identify samples of minerals
  - Labs: Minerals

Math

- Simulation: Journey up the Nile
  - Serves as transition from unit on Egypt
  - Cooperative learning teams to create families
- Writing variable expressions
- Solving algebraic equations
- Graphing data
- Data analysis
- Interpretation and predictions
- Composition: Essay on how algebraic equation is performed

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APPENDIX D

WOODSTOCK MIDDLE SCHOOL

AEL Report on ITI
Part 1 - School History

Woodstock Middle School is located in a rural community in the Shenandoah Valley, approximately 125 miles southwest of Washington, D.C. The student body of W.M.S. is drawn from "Blue Collar" families. The plant facility was erected in 1934 as Woodstock High School. At one point it was an elementary school for grades one through seven. Subsequently, through many shifts in grade level structuring, the seventh and eighth grades were combined in 1981 to form Woodstock Middle School. During the 1993-1994 school year, Woodstock Middle served 375 students with a faculty and staff of 42. The school term of 1993-1994 marked the end of Woodstock Middle School; Peter Muhlenberg Middle School, a consolidation school combining Woodstock Middle School and Edinburg Middle School, opened in the fall of 1994 to house grades five through eight.

The 1989-1990 school year was highlighted by a restructuring movement to redesign the curriculum and structure of W.M.S. The middle school components adopted by the county and state have been gradually implemented since that time. Teaming, cooperative learning, interdisciplinary units of study, advisor-advisee programs, and increased parent and community involvement became the basis of our educational programs in the 1990-1991 term.

In 1993-1994 the seventh grade was divided into two teams. Due to enrollment, each team consisted of four core teachers and a resource teacher. The eighth grade was also divided into two teams. Each of these teams consisted of three core teachers and a resource teacher. This was the second year of the inclusion program and the resource teachers worked with remedial and special education students.

The Related Arts Team was composed of ten teachers who provided music, art, Spanish, French, agriculture, teen living, physical education, and gifted services for the student body. Due to our large enrollment during the 1993-1994 school year, a team planning period was not available for the Related Arts Team. This made it difficult for interdisciplinary planning. An additional complication was a thirty-three percent (33%) staff turnover at the beginning of the 1993-1994 school year, with the majority of that turnover occurring on the Related Arts Team.

To progress further with interdisciplinary teaming, the faculty and staff welcomed the opportunity to join AEL's research project on Interdisciplinary Teamed Instruction in May, 1992. At that time the faculty was already divided into teams, had experimented with short term team interdisciplinary units, and had taught two school wide multidisciplinary units.

Originally the ITI Team was composed of two seventh grade teachers, two eighth grade teachers, two related arts teachers, and one administrator. Members on the team had two to sixteen years of teaching experience. One problem with this first year was that one seventh grade team was not represented on the ITI Team. In addition, the science department had no representation. This eliminated input from them and caused major communication problems.

In the second year the ITI Team was composed of five seventh grade teachers, two eighth grade teachers, two related arts teachers, and one administrator. Two of the seventh grade teachers and one of the eighth grade teachers were new to the ITI Team. All teams and disciplines were represented in the second year. This adjustment to the ITI Team composition greatly improved the communication in our building and the effectiveness of our school wide interdisciplinary unit.

Part 2 - Year One

The interdisciplinary unit of study during our first year with the ITI project was called "Survival of the Fittest: Then and Now." This was our first all-school interdisciplinary unit that was centered around the basic skills for surviving in our society, both as an individual and as a country, at home and abroad, from World War II until today (1993). The skills taught emphasized how to deal with the essentials to successfully participate in a unit whether it be a family, community, organization, business, or country. The unit stressed how to make choices, how to learn from mistakes, how to gather information, and the value of citizenship. The unit outcomes included:

1. to make our students responsible individuals that have a good sense of their abilities and needs and apply that knowledge to make choices critical for survival that lead to a healthy, productive, fulfilling life;

2. to develop expressive contributors who experience cultural and creative activities, participate in them, and grasp important ways in which culture defines both the individual and society in relation to the world;
3. to make our students independent learners who take responsibility for producing a high-quality product or service.

We faced many obstacles trying to get this unit off the ground. Faculty involvement was one of these obstacles. A large number of our faculty was overwhelmed with the idea of doing this much at one time. Many were hesitant about the project because they felt it might take away from the curriculum they were used to teaching, feared the amount of work the project would take (due to the fact that the unit occurred at the end of the school year), and lacked the experience of opening their doors and working with the entire faculty at one time. Some of the other obstacles we faced included:

1. lack of preparation before the unit began;

2. too many changes from our initial plans;

3. no ITI Team leader to guide us and act as primary communicator to the rest of the faculty;

4. a unit based on a theme rather than skills;

5. parent concern about the military theme, especially since there was a gun found on the school grounds during this school year;

6. Fluff vs. Stuff - in the past, we had the ability to make our building look super to portray the theme of our units, but the actual curriculum was weak in some areas.

Many of these obstacles were not fully corrected until our second year with the ITI project, but we did make some adjustments along the way to alleviate pressure. To help give the faculty some ownership of the project, we made a list of all the jobs that needed to be completed for the unit and asked

each faculty member to be responsible for one of the jobs. The ITI Team made a decision to present the unit to the faculty on a specific date to discourage us from changing the plans again. Additionally, we invited the concerned parents into the school so they could see that unit was actually based on survival skills, not on militarism.

Even though we were not able to correct all of the obstacles during year one, the unit was very successful. Attendance reports showed that student attendance increased during this six week unit. In addition, the discipline report from the office showed that the number of discipline problems during the unit decreased. Surveys were sent to teachers, parents, and students. Many of the surveys returned had positive responses regarding the unit. Some of the surveys did include concerns and suggestions that we re-evaluated for the second year.

Part 2 - Year Two

Using the documentation from the year one evaluation instruments, the unit was improved and refined in its second year. Improvements and modifications included:

1. a designated ITI Team leader to improve communications within the team itself and , in turn, with the faculty and staff as a whole;

2. representation from all grade level teams and all disciplines;

3. the implementation of a time line with check points at the beginning of the school term, which allowed plenty of time to plan for the end of the year unit;

4. reconciling the philosophical differences held by some faculty members by educating them with research supporting the philosophy of AEL;

5. listening to faculty concerns and offering encouragement and suggestions;

6. modeling some of the suggested teaching strategies;

7. peer-evaluation of unit lesson plans;

8. changing the focus of the unit from a World War II theme to a unit based on life skills

9. spending less time on an end of the unit production and more time on content and assessment.

As a result of these changes, the ITI Team decided to change the name of the unit to "Surviving in a Changing World" to reflect our new ideas. This name better suited the ideal behind our new unit, that ideal being a unit centered around a set of skills.

The interdisciplinary unit our ITI Team presented to the individual school teams was based on three skills - communicating, problem solving, and decision making. Teachers were asked to teach these skills in one or more of the following focus areas: the environment, careers, multiculturalism, technology, and/or current issues. Our ITI Team found an almost instantaneous positive response from the educational teams at W.M.S. During our first year we asked teachers to teach their curriculum under the umbrella of a World War II theme. Many teachers found this difficult and frustrating; they felt inhibited because they were forced to totally restructure their materials, lessons, and curriculum to fit this theme. With a new ITI unit based on a set of skills, teachers did not need to change their curriculum, lessons, or materials; they could teach in any of the five focus areas as long as they covered the major skills that were the focus of the unit.

The change our ITI Team made in the focus of our survival unit, which provided stronger faculty support, was only one of the many positive aspects of our new unit. We decided to involve the community and parents to a greater extent, a move which proved to be a wise one. Since careers was one of the focus areas of our unit, we sent surveys to dozens of local businesses, asking questions regarding employee qualifications, education, skills, etc. These

businesses were more than happy to complete and to return the surveys, providing our faculty with an added store of knowledge to use for the unit. In addition to these surveys, our Parent Advisory Committee surveyed student career interests, compiled that data, and organized a career day for the entire student body. Again, dozens of businesses supported our efforts by sending representatives to meet with the
students and answer their question; students and parents alike were pleased to get such an opportunity.

To culminate the unit, W.M.S. displayed the projects, simulations, etc. that the students produced during the unit at a Survival Expo. On a Sunday afternoon the community was invited into the school to view the Expo. Allowing the students, faculty, parents, and community to assist with and view the results of this educational experience proved to be a positive and rewarding decision.

During year two, our ITI Team ran up against several obstacles during the planning stages, obstacles that made planning this interdisciplinary unit a lengthy (and sometimes difficult) task. Our faculty was preparing to move into a new school the following school year, so everyone had to spend extra time planning, preparing, and packing for this move. In preparation for the new school building, our principal was often out of the building attending meetings and ordering equipment; therefore, we lost some of our on-site administrative support. The central office in our county did not play an active role in the AEL project, so we lost support from that end as well. This combined lack of support resulted in a loss of planning time, resources, and timely feedback.

The diversified responsibilities and experience of the W.M.S. faculty also proved to be an obstacle to overcome. For the 1993-1994 school year, W.M.S. had a one-third turnover rate of teachers, which meant that we had to "sell" our survival unit to many teachers who had not participated in the ITI unit the year before. In addition, we expanded the ITI Team from six members to nine. As a result, it was hard to find enough substitute teachers to cover this large number of classrooms for our limited number of planning days. Our faculty also had the added responsibility of restructuring our rather unique county middle school grading policy. This involved countless hours of committee meetings, planning, organizing, and documenting, hours that (at times) drained our energy and limited the amount of time that we had to plan our survival unit. The faculty also found that the large number of snow days in our county inhibited planning time and consistency.

All of these obstacles, however, were overcome (mainly by using personal time to meet and prepare the survival unit) and with the cooperation and dedication of the W.M.S. faculty, we prepared and presented an interdisciplinary unit that was well worth the effort.

Part III - Findings and Conclusions

A. Findings and Conclusions About Students and Parents

One goal of interdisciplinary teamed instruction is to increase student interest in their own learning . Our findings support the conclusion that interdisciplinary units improve student performance. Data shows that during the school-wide interdisciplinary units, attendance increased, discipline referrals decreased, and the number of students on the A/B Honor Roll increased. Attendance went from 95.35 % to 95.7 % school-wide. There were fewer new discipline referrals to the office. The number of students on the Honor Roll list increased on the all A's list and on the A/B list.

From the input on the student surveys, we found that students:

1. enjoyed the "hands-on" activities;

2. valued real-world activities, such as keeping an accurate checking account, writing real newspapers, interviewing for jobs, working with computers and other technology, and researching/debating current issues of global importance;

3. enjoyed learning about how other people, past and present, survived in different situations;

4. liked the activities that related to their future, such as Career Day and designing original presentations of the skills they learned.

Specific student comments from the surveys regarding what they learned during the survival units included:

> "I wasn't prepared for the real world of jobs at all and I didn't know how many jobs there are."
> "I'm prejudice in some ways."
> "I learned that I am smart and I learned that even if I made bad grades somewhere deep inside I know more than I can imagine and I'll try to use it."
> "You don't need books, pencil, and paper to learn, you can learn from guest speakers, movies, etc."
> "I could act well without getting stage fright."
> "I learned that I really didn't know how much you learn in school, you take all through your life."
> "We all have to work together if we want to change things."
> "I can talk in Spanish."
> "When I get older I will have to face a lot of problems. I now know how to cope with some."
> "I and anyone else who wants to make it through life has to take care of the environment."
> "What qualifications I need to achieve my career."
> "I learned that I am hardworking and that if I try hard I can survive in this changing world."
> "I learned that if I put my mind to doing something then I can do it."
> "There are some things I do wrong to save our environment."
> "I learned that if I really try then I could help with other people help getting the environment cleaner."
> "I enjoy working with other people."
> "My favorite was learning about WWII, especially the homefront, like recycling, rationing, women working, propaganda, and segregation. I like learning about the past, and what real people went through."
> "I learned that it is not as easy as it seems to support yourself."
> "How the Jews lived and what happened to them during WWII. That I am lucky to have freedom and that other kids don't have what I have and that every life is special."

> "I have a lot to learn about surviving but I have an idea of how to."
> "Discrimination and prejudice are really bad and some people go too far with some things. I don't like prejudice at all, against anyone."
> "I learned to be punctual with deadlines."
> "I should respect others."
> "I should take my education seriously and always think about the future."
> "I learned that I can learn a lot in school and still have fun. I learned that learning is a lot of fun when the whole school is involved."
> "I didn't realize how hard an adult's job is."
> "It's harder to be an adult than I thought."
> "To survive and get along with others, you must cooperate, agree, and give respect to all people. I can survive if I have patience and think positive. To achieve you must have a great outlook and set many goals for yourself."

The input from the parent surveys on our interdisciplinary survival units indicated that:

1. parents favored the activities that related to the real world;

2. they enjoyed the opportunity to take an active participation in their child's education (Career Day, Survival Expo, USO Show);

3. the excitement their children showed during the last six weeks of school both surprised and impressed them.

4. the parents reacted favorably to our decision to change our unit from one based on a war theme to one based on skills needed in the real world.

Some comments and suggestions parents provided on the parent survey regarding the survival units included:

> "This was a good program. I know adults that have trouble with some of the activities these students dealt with. It was a good learning experience."
> "I think it gave the students the chance to deal with problems and situations they will need to be prepared for in their future years."
> "Provide parents with written information about the program, including how subjects/program will be integrated in each subject, what the objectives of the program are, and expectations of parent involvement."
> "There are some beneficial aspects of this unit, but many students would do better if they could do their projects individually. So called "cooperative" learning is overused and can cause resentment and frustration for those motivated students who do make an effort."
> "Although I was aware of and helped my daughter with several of her projects, I can't say I remember the main topics. However, any interdisciplinary unit has to be great because it is all inter-related. We both learned a lot about the career topic."
> "I think this is a good idea and something the children will definitely need."

Findings and Conclusions About Teaming

The ITI Team was very busy in the two year program directing the events of the school-wide units. In the first year, there were no specific roles for the team. Changes were made in year two to have a leader, recorder, librarian, positive thinker, internal communicator, and external communicator. This change improved communication, eliminated duplication of tasks, and gave us confidence in the process. Also during our second year, we used a lot of out of school planning time to alleviate the pressures of less administrative support, compositions changes in the ITI Team, and school closings due to weather. We found that these two elements, organization and dedication, are key elements in developing an interdisciplinary unit as a team.

Findings and Conclusions About Faculty

The staff at Woodstock Middle School was very supportive through this two year process considering the limited training the entire staff had in developing interdisciplinary units. The second year showed a turnover in staff members; nine new teachers joined the staff. This created new concerns for the ITI Team. Training was needed for the members not familiar with interdisciplinary units, especially ones that involve the whole school. The switch from a unit centered around a theme to one surrounding skill areas seemed to help the new members, since their curriculum fit into the unit with ease. It is important to start small and build confidence with developing units. With proper communication, organization, faculty ownership of the unit, and training, we found that every faculty member, even new ones who had no experience with interdisciplinary instruction, can work together well to develop and teach a cohesive and highly effective unit.

Input gathered on the faculty surveys indicated that they enjoyed teaching real-life information, favored flexible block scheduling for interdisciplinary units, appreciated the hands-on activities, and admired the dedication of the parent and student involvement. Faculty suggestions for improvement included:

1. Implement the unit earlier in the year.

2. Work on expanding availability of resources since many teachers need the same things at the same time.

3. Set firm deadlines and time frames and do not change so much once they have been established.

4. Shorten the six-week unit time frame.

5. Involve students to a greater extent in the planning and implementation of the unit.

Specific teacher comments and suggestions regarding the survival units included:

> "Focused on skills students (everyone) need."
> "Interdisciplinary!! Yea!!"
> "Good chance to do something new/creative."
> "Incorporate an entire planning day for all teachers/staff devoted only to the unit."
> "Applicable to existing curriculum."
> "Strengths included different forms of evaluation/projects and different methods of teaching."
> "It was something the students could personally relate to."
> "Objectives were clearly stated and students were excited."
> "Do units by team, not as a whole school."
> "Timing within school year (final grading period) interfered with/interrupted end-of-year necessities."
> "Easier for first year teachers."
> "Good unit because it had lots of hands-on and lots of material presented to students that they can apply to real life."
> "We need more student input in the planning."
> "When skills were the focus of the unit, it was more practical and easy to assess."

Recommendations

Our ITI Team and faculty would like to offer several recommendations based on our experiences:

1. **Start small. Do not try to do a school-wide unit first. Get confidence in developing units on a team level, gradually build to a grade level unit, then include more than one grade level, and maybe eventually a school-wide unit.**

2. The staff needs to get away from a departmentalized way of thinking and move into the overall picture. This will be done more easily if you take things slowly and give the staff time to become familiar with and confident in interdisciplinary teaching.

3. When you begin this restructuring process, make it your top priority. Make one innovation at a time; do not try to implement a great number of new teaching projects with your interdisciplinary restructuring. This process will take several years before it feels comfortable and it is very time consuming. Change takes time.

4. Make sure the ITI idea is fully supported not only by the administration in your school building but also by the central office personnel. This process takes a great deal of planning that will require out-of-school hours. Release time for teachers to visit other schools, develop units, find resources, etc. is imperative. This will require budget allocations at the school and county levels.

5. Create units based on specific goals, skills, and outcomes you want your students to accomplish. Otherwise, you are just putting on a show.

Part IV - Conclusion

The ITI Team feels that we have accomplished and learned many new things about interdisciplinary teamed instruction with the assistance of Appalachia Educational Laboratory. We also feel that we need to take a step back and reassess our progress in terms of unit structure, team building, and student assessment.

We plan to put a strong emphasis on developing interdisciplinary units within grade level teams, then strive to develop better interdisciplinary units within grade level teams involving the related arts personnel. At the same time we hope to become less departmentalized and lean more toward true team teaching. We want to use alternative assessment more and develop team assessments instead of an assessment for each core subject. We want to continue developing units that will provide hands-on experiences and "real world" application for our students. Our goal is to involve the students more in the development of these units. Finally, we hope to begin a networking system with other schools involved with ITI to keep the channels of communication and ideas open. Learning from others is a part of education, student and teacher alike.

To support these future ITI goals, our faculty plans to make better use of our time and resources. We will use one Thursday a month for curriculum development and another Thursday for faculty and staff development (designing rubrics, student assessment, and other workshops). On the team level, we plan to make better use of our common planning time to implement ITI. Communication and thorough planning on the instructional team level builds the foundation for effective school-wide interdisciplinary units. Finally, we will encourage student representation in the planning of interdisciplinary units. Having ownership of the events in one's life is important, as we found with our staff during the year one unit. Our desire is to give the students ownership of a unit of study that will excite their imagination, spark their creativity, and develop within them the skills needed to survive in our ever-changing world.

Surviving in a Changing World:
An Interdisciplinary Unit with Real World Application
Woodstock Middle School, Woodstock, Virginia

1. Overview of unit

Surviving in a Changing World is a unit that will develop the skills of decision making, problem solving, and communicating necessary for survival in an ever-changing world through a focus study of the environment, technology, multiculturalism, social/economic issues, and job skills. The unit is a truly special one because you can manipulate it to cover the gamut of student ages and subject matter. Woodstock Middle School taught the unit to grades seven and eight, using all content areas (core and related arts). The planning wheels included in this appendix will illustrate the subject areas that we included and an overview of the activities for each content area. The activities were designed to be appropriate for the middle school child; however, any school could use this unit simply by modifying the activities and objectives to meet the age appropriate needs of the students.

2. Student Goals and Expectations

In terms of the middle school child, Woodstock Middle School thought it would be appropriate for our students to be able to:

1. solve problems creatively and cooperatively (e.g. inventions, new products, new approaches);
2. apply the scientific method and other problem solving methods to real world problems/situations (e.g. the Shenandoah River, money management);
3. locate, evaluate, and use various methods and technology to collect data to solve problems and to make informed decisions;
4. communicate new learning to others through quality presentations, performances, products, etc.;
5. identify objective and subjective information (e.g. journalistic reporting, advertising, propaganda);

6. communicate effectively with a variety of audiences (e.g. community, group work, phone etiquette, job interviewing skills).

Each teacher at W.M.S. chose the objectives that would best suit his/her content area, broke the selected objectives into content area objectives, and compared the selected objectives within the instructional team to insure that the each student on the team would master the six major goals listed above.

3. Content Area Activities and Timelines

The unit lasted for six weeks, with each teacher completing his/her objectives/activities. In terms of timelines, each teacher simply set a goal of completing all objectives and activities by the end of the six-week period; specific weekly timelines were hard to establish as most teachers selected one or two large, hands-on activities that involved cooperative learning, large projects, involved presentations, etc. Examples of these activities include:

1. Grade 7 Language Arts - Students learned how to complete real world applications (driver's license applications, job applications, etc.), use appropriate conversational etiquette on the phone (ordering from companies, making reservations, dealing with salespeople, etc.), and job interviewing skills (which culminated in an actual job interview with a teacher in the school).

2. Grade 8 Language Arts - Students learned how to write/design the different parts of a newspaper (news stories, editorials, political cartoons, classified ads, etc.) and worked in groups (with computers) to design, write, edit, and publish an original school newspaper.

3. Grade 7 Math - Students planned monthly budgets; discovered the wonderful world of banking by filling out deposit slips, withdrawal slips, and checks; learned about different types of taxes and completed tax forms; and balanced their own checkbooks.

4. Grades 7/8 Agriculture - Students drew plans for a home garden (complete with measurements, vegetables to grow, etc.) and built an assortment of projects out of wood.

Although we did not have specific timelines, as each teacher worked at his/her own pace, we did do peer evaluation of each teacher's lesson plans for the unit as an initial check. The criteria for the plans included:

1. real world application/connection;
2. hands-on/experiential learning;
3. use of authentic assessment;
4. use of group, peer, self, and teacher assessment;
5. teacher modeling of student activities;
6. addressing multiple intelligences/learning styles (give choices).

By using this peer evaluation of the lesson plans, we were able to make sure that every teacher in the building was focusing on the skills and areas that were the underlying ideals of the survival unit.

4. Student Assessment

Another area of focus for our interdisciplinary unit was the use of assessment. Each teacher used his/her own assessment, but when we checked the lesson plans, we looked to see that each instructional team used a variety of assessments. One of our assessment goals was that each student would experience a variety of assessments, including teacher, self, peer, and group. Student responses on surveys regarding the unit indicated that they enjoyed and respected the opportunity to evaluate themselves and each other. In addition to this, another goal was to improve our use of rubrics. The ITI team encouraged all teachers to develop rubrics before the unit started, which would make it easier to provide students with expectations of a final project, presentation, etc. Besides making it easier, we also felt it would be more fair to the students to know what the teachers would evaluate them on at the end of the unit.

5. Materials/Resources/Activities

As we mentioned earlier in the report, W.M.S. wanted to get away from the "fluff" of the interdisciplinary unit (elaborate decorations that take away from instructional time, excessive non-educational activities, etc.) and focus on the curriculum. As a result, the unit activities were fairly simple and had sound educational relation. We started the unit with the students in advisory on a Monday morning. Each advisor had a large planning wheel drawn on a sheet of paper with the title of the unit in the center circle and the subject areas written in the open spaces around the circle. Within advisory that morning, the students filled in each subject area circle with activities they would like to do that relate to the topic of survival : decision making, problem solving, and communicating. This activity got the students focused on the purpose of the unit and gave the teachers some extra input as to activities they could use in their classrooms.

Approximately three weeks into the unit, our Parent Advisory Committee organized a Career Day for the entire student body. Students filled out questionnaires about the careers that most interested them and the Parent Committee arranged to have representatives from those careers in the building on a Friday to make a presentation to the students and answer their questions.

Finally, to culminate the unit, we had a Survival Expo. On a Sunday afternoon, all of the projects, videos, etc. that the students created during the unit were put on display and the school was opened for a public viewing. Student ambassadors guided the parents through the school and elaborated on the learning that had taken place during the past six weeks. The Career Day and Survival Expo were an excellent way to get the parents and community involved in our all-school unit.

We used a vast number of resources/materials, the only guideline being that they related to the real world. Many teachers used computers, video equipment, and other pieces of technology we could get our hands on. Newspapers, news shows, and magazines were used to supplement activities such as the 8th-grade newspapers and the 7th-grade debates about current political issues. Many teachers also used copies of bank slips, tax forms, job applications, etc. from community agencies to add to the real world value. The teachers at W.M.S. used very few textbooks and professional publications; they instead made the effort to get "real world" materials from community/government agencies to use in the planning of activities.

Team 7B
Surviving in a Changing World

Math

- Banking
  - functional checkbooks
  - types of checking accounts
- Tax Returns
  - 1040 EZ
  - personal property
  - social security
- Buying/Selling
- Unit Pricing

Science

- Environment/Ecology
  - interdependence
  - ecosystems
  - energy transfer
  - relationships
- Environmental Issues Relating to Human and Wildlife Growth
  - industrial growth
  - population growth
  - types of pollution
  - technology
  - loss of habitat
  - reducing/reusing/recycling
  - environmental ethics/laws

Decision Making, Problem Solving, and Communicating

Language Arts

- Careers
  - computers
  - decision making
  - simulated job interviews
- Black Americans
  - different cultures
  - novel study based on historical point of view of African Americans
  - Research/Problem-Solve where we are now with the racial issue

Social Science

- Technology/Environment
  - Disney Park Proposal
    - => simulation/role play real-life problem
    - => environmental effect
    - => take position and support it
    - => decision making
    - => problem solving
    - => contact and communicate with representatives
- Political Careers
- Environmental Laws

Team 8
Surviving in a Changing World

Math

- Budgeting
- Shopping/Eating Out
- Percents, Tax, Discounts, etc.
- Baseball Stats
- Area, Perimeter, and Volume

Science

- Analyze Products
  - PH of shampoos
  - create product ad for language arts newspaper
- Grow Irradiated Seeds
  - analyze and graph data
- Fingerprinting

Decision Making, Problem Solving, and Communicating

Language Arts

- Newspaper Unit
  - write news stories, editorials, and features
  - create political cartoons and ads
  - work with layout and design techniques
  - write school newspaper in group on computers
  - job skills - each group will have an editor, assistant editor, art director, advertising director, and reporters

Social Science

- Environmental Studies/Other Current Issues
  - create ads for newspapers
  - write editorials
  - create public service announcements
- "Fun With Garbage Day"
- School Beautification Project
- Researching Skills

Related Arts Team
Surviving in a Changing World

Spanish

- time
- signs
- Hispanic Culture
- influence of soccer
  - traveling (railroad, airport, camping)
  - how to survive in a Hispanic country

Teen Living/ Life Management

- decision making processes
- understanding self and others
- relating to others
- personal development
- clothing management

Agriculture

- planning the home garden
- keeping records
- applying FFA awards
- constructing a wood project
- careers

French

- communicate with people in a French culture
- how to survive in a changing French culture

Decision Making, Problem Solving, and Communicating

Art

- European masterpiece and drawing
- cloth material
- machine prints
- International mail art
- historical quilt prints
- newsletter
- French artists/drawings
- organic sculptures

P.E./Health

- become prepared for P.E.
- cooperate with others in a team sport
- choosing to make fitness and health an important part of life
  - understanding and using first aid and CPR
  - setting goals for a healthy lifestyle

Communication, Citizenship, Careers

- resumes
- cover letters
- interviewing
- lining up job interviews
- employee rights
- new technologies
- the changing world

Music

- learning to accept multiculturalism
- communicating about multicultural differences
- rewriting and acting out/singing out several scenes from "West Side Story"

APPENDIX E

TEACHER QUESTIONNAIRE

TEACHER QUESTIONNAIRE

School: _____

The purpose of this questionnaire is to evaluate the Interdisciplinary Teamed Instruction project as a professional development model and its effect on teaching and learning. It is not the purpose of this questionnaire to make any judgments about your effectiveness as a teacher or the effectiveness of your school.

Your responses will be completely anonymous in the final report, so we hope you will feel free to answer each question candidly. Please mark or write your response to each statement or question directly on the questionnaire.

SECTION I

Evaluating ITI as a Professional Development Model

The ITI project has used summer institutes, onsite workshops, and action research as tools to develop participants' knowledge about curriculum integration, skill in interdisciplinary teamed instruction, and attitudes about reflective teaching. The questions in this section are designed to help AEL evaluate the effectiveness of these processes in teacher professional development.

INSTRUCTIONS: For the items in questions one and two, please CIRCLE THE ONE NUMERAL on the scale that best describes your response.

1. Please rate the degree to which you feel each of the following ITI project goals was met.

   A. Increase understanding of ITI concepts, processes, and skills.

   Not met — Completely met

   1 2 3 4 5

   B. Provide helpful implementation resources.

   Not met — Completely met

   1 2 3 4 5

   C. Enhance team-building capacity.

   Not met — Completely met

   1 2 3 4 5

   D. Increase teacher empowerment.

   Not met — Completely met

   1 2 3 4 5

   E. Support/assist educational change.

   Not met — Completely met

   1 2 3 4 5

   F. Increase collegial exchange.

   Not met — Completely met

   1 2 3 4 5

2. Please rate the value of the following as professional development activities.

   A. Residential summer institutes.

   No value Great value

   1 2 3 4 5

   B. Followup support through onsite workshops.

   No value Great value

   1 2 3 4 5

   C. Teacher involvement in classroom action research.

   No value Great value

   1 2 3 4 5

3. What does action research mean to you?

4. Would you like to participate in future action research projects? Why or why not?

5. In what ways have you shared what you have learned in this project with other professionals?

6. Describe any changes in your school that have resulted from your team's participation in the ITI project.

INSTRUCTIONS: For question 7A, please CIRCLE THE ONE NUMERAL on the scale that best describes your response.

7A. Please rate the overall effectiveness of the ITI project as a professional development model as compared to other professional development activities you have experienced.

Not effective Very effective

1 2 3 4 5

7B. If your rating is less than 5 what would it take to make it a 5?

SECTION II

Evaluating Effects of ITI on Teaching and Learning

A wide range of theoretical literature supports the design of a "connected" curriculum that emphasizes transfer of knowledge within and across disciplines and to the real world. A primary purpose of the ITI research project is to determine the impact of interdisciplinary curriculum and teamed instruction on teaching and learning. The questions in this section are designed to help AEL assess changes in teacher and student performance that have resulted from this two-year project and the factors that may have influenced the changes.

8. Please describe ways in which your participation in the ITI project has affected:

   1) What you teach

   2) How you teach

9. What different methods did you use for soliciting feedback on your teaching during participation in the ITI project?

10. What have you learned about your teaching from feedback received from supervisors, students, parents, and others during the ITI project?

INSTRUCTIONS: For the items in question 11, please CIRCLE THE ONE NUMERAL on the scale that best describes your response.

11. Please rate (1) the importance of each of the following factors to successful implementation of ITI and (2) describe the degree to which each factor was present in your school.

A. Released time for project activities.

(1) Not important ——— Very important

1 2 3 4 5

(2) Not present ——— Always present

1 2 3 4 5

B. Daily common planning time for teams.

(1) Not important ——— Very important

1 2 3 4 5

(2) Not present ——— Always present

1 2 3 4 5

C. Instructional space that puts team members in close proximity.

(1) Not important ——— Very important

1 2 3 4 5

(2) Not present ——— Always present

1 2 3 4 5

D. Flexible block scheduling.

(1) Not important Very important

1 2 3 4 5

(2) Not present Always present

1 2 3 4 5

E. A yearly action plan for ITI work.

(1) Not important Very important

1 2 3 4 5

(2) Not present Always present

1 2 3 4 5

F. Support from team members.

(1) Not important Very important

1 2 3 4 5

(2) Not present Always present

1 2 3 4 5

G. Support from other faculty.

(1) Not important Very important

1 2 3 4 5

(2) Not present Always present

1 2 3 4 5

H. Support from central office (e.g., released time/substitutes, funds for resources, funds for summer institutes, etc.).

(1) Not important Very important

1 2 3 4 5

(2) Not present Always present

1 2 3 4 5

I. Technical assistance from an outside facilitator.

(1) Not important Very important

1 2 3 4 5

(2) Not present Always present

1 2 3 4 5

J. Support from parents/community.

(1) Not important Very important

1 2 3 4 5

(1) Not present Always present

1 2 3 4 5

K. Administrative commitment.

(1) Not important Very important

1 2 3 4 5

(2) Not present Always present

1 2 3 4 5

L. School climate that encourages innovation and risk taking.

(1) Not important Very important

1 2 3 4 5

(2) Not present Always present

1 2 3 4 5

M. Training

(1) Not important Very important

1 2 3 4 5

(2) Not present Always present

1 2 3 4 5

N. Networking with others who are implementing ITI

(1) Not important Very important

1 2 3 4 5

(2) Not present Always present

1 2 3 4 5

12. Please identify any factors that hindered implementation of ITI in your school.

13. What administrative behaviors contributed most to successful implementation of ITI in your school?

14. What changes, if any, have you seen in the attitudes of students during their participation in ITI units?

15. What changes, if any, have you observed in student performance during their participation in ITI units?

16. What have been the personal outcomes of ITI for you?

APPENDIX F

ADMINISTRATOR QUESTIONNAIRE

ADMINISTRATOR QUESTIONNAIRE

School: _____

The purpose of this questionnaire is to evaluate the Interdisciplinary Teamed Instruction project as a professional development model and its effect on teaching and learning. It is <u>not</u> the purpose of this questionnaire to make any judgments about your effectiveness as an administrator or the effectiveness of your school.

Your responses will be completely anonymous in the final report, so we hope you will feel free to answer each question candidly. Please mark or write your response to each statement or question directly on the questionnaire.

SECTION I

Evaluating ITI as a Professional Development Model

The ITI project has used summer institutes, onsite workshops, and action research as tools to develop participants' knowledge about curriculum integration, skill in interdisciplinary teamed instruction, and attitudes about reflective teaching. The questions in this section are designed to help AEL evaluate the effectiveness of these processes in teacher and administrator professional development.

1. What benefits do you think (1) teachers and (2) administrators gain from participating in projects like the ITI study?

   Teacher benefits:

   Administrator benefits:

INSTRUCTIONS: For the items in questions two and three, please CIRCLE THE ONE NUMERAL on the scale that best describes your response.

2. Please rate the degree to which you feel each of the following ITI project goals was met.

   A. Increase understanding of ITI concepts, processes, and skills.

   Not met — Completely met

   1 2 3 4 5

   B. Provide helpful implementation resources.

   Not met — Completely met

   1 2 3 4 5

C. Enhance team-building capacity.

Not met Completely met

1 2 3 4 5

D. Increase teacher empowerment.

Not met Completely met

1 2 3 4 5

E. Support/assist educational change.

Not met Completely met

1 2 3 4 5

F. Increase collegial exchange

Not met Completely met

1 2 3 4 5

3. Please rate the value of the following as professional development activities.

A. Residential summer institutes

No value Great value

1 2 3 4 5

B. Follow-up support through onsite workshops

No value Great value

1 2 3 4 5

C. Teacher involvement in classroom action research

No value Great value

1 2 3 4 5

4. In what ways have you or other team members shared what you have learned in this project with other professionals?

5. Describe any changes in your school that have resulted from your participation as an administrator in the ITI project?

6. What does action research mean to you?

7. Would you like to participate in future action research projects? Why or why not?

INSTRUCTIONS: For question 8A, please CIRCLE THE ONE NUMERAL on the scale that best describes your response.

8A. Please rate the overall effectiveness of the ITI project as a professional development model as compared to other professional development activities you have experienced.

Not effective				Very effective
1	2	3	4	5

8B. If your rating is less than 5 what would it take to make it a 5?

SECTION II

Evaluating Effects of ITI on Teaching and Learning

A wide range of theoretical literature supports the design of a "connected" curriculum that emphasizes transfer of knowledge within and across disciplines and to the real world. A primary purpose of the ITI research project is to determine the impact of interdisciplinary curriculum and teamed instruction on teaching and learning. The questions in this section are designed to help AEL assess changes in teacher and student performance that have resulted from this two-year project and the factors that may have influenced the changes.

9. What components of ITI have been easiest to implement?

10. What components of ITI have been most difficult to implement?

INSTRUCTIONS

For the items in question #11, please CIRCLE THE ONE NUMERAL on each scale that best describes your response.

11. Please rate (1) the importance of each of the following administrative behaviors to successful implementation of ITI and (2) the degree to which those behaviors were exhibited in your school.

A. Participating regularly in team meetings

(1) Not important — Very important

1 2 3 4 5

(2) Never — Always

1 2 3 4 5

B. Providing released time for project activities

(1) Not important — Very important

1 2 3 4 5

(2) Never — Always

1 2 3 4 5

C. Providing daily common planning time for team members

(1) Not important — Very important

1 2 3 4 5

(2) Never — Always

1 2 3 4 5

D. Using a flexible block schedule

(1) Not important — Very important

1 2 3 4 5

(2) Never — Always

1 2 3 4 5

E. Communicating goals and expectations for ITI to central office staff

(1) Not important — Very important

1 2 3 4 5

(2) Never — Always

1 2 3 4 5

F. Communicating goals and expectations for ITI to other faculty members

(1) Not important ... Very important

1 2 3 4 5

(2) Never ... Always

1 2 3 4 5

G. Communicating goals and expectations for ITI to parents/community

(1) Not important ... Very important

1 2 3 4 5

(2) Never ... Always

1 2 3 4 5

H. Increasing teacher responsibility and accountability for instructional decisionmaking

(1) Not important ... Very important

1 2 3 4 5

(2) Never ... Always

1 2 3 4 5

I. Involving team members in school decisionmaking (e.g., scheduling, budget, etc.)

(1) Not important ... Very important

1 2 3 4 5

(2) Never ... Always

1 2 3 4 5

J. Reorganizing instructional space to facilitate teaming

(1) Not important ... Very important

1 2 3 4 5

(2) Never ... Always

1 2 3 4 5

K. Providing time on a regular basis during faculty meetings for learning about ITI

(1) Not important ... Very important

1 2 3 4 5

(2) Never ... Always

1 2 3 4 5

L. Providing time during staff development days or faculty retreats for learning about ITI

(1) Not important ... Very important

1 2 3 4 5

(2) Never ... Always

1 2 3 4 5

M. Providing funds for materials, training, and other resources

(1) Not important ... Very important

1 2 3 4 5

(2) Never ... Always

1 2 3 4 5

N. Giving feedback on teacher/team performance

(1) Not important ... Very important

1 2 3 4 5

(2) Never ... Always

1 2 3 4 5

O. Recognizing team efforts/accomplishments

(1) Not important ... Very important

1 2 3 4 5

(2) Never ... Always

1 2 3 4 5

12. As you reflect on your participation in the ITI project, what would you have done differently? Why?

13. What administrative behaviors would you recommend to other principals who want to implement ITI?

14. What teacher attitudes and behaviors seem to:

(1) Facilitate ITI implementation

(2) Hinder ITI implementation?

15. What effect has the ITI project had on nonproject teachers at your school?

16. What changes, if any, have you observed in student attitudes during their participation in ITI units.

17. What changes, if any, have you observed in student performance as a result of their participation in ITI units.

18. After the AEL-ITI project is completed, how do you anticipate using ITI in your school?

APPENDIX G

NON-PARTICIPANT TEACHER QUESTIONNAIRE

AEL

Improving Education Through
Research and Development

April 8, 1994

Dear Teacher:

You have been randomly selected to complete this brief questionnaire. The purpose of this questionnaire is to assist the Appalachia Educational Laboratory (AEL) in collecting information about the Interdisciplinary Teamed Instruction (ITI) project that has been conducted in your school during the past two years. This information is being collected as part of the project evaluation. We would appreciate your taking a few moments now to complete the questionnaire. Please return it by April 20 in the postage paid envelope provided for you. It is not the purpose of the questionnaire to make any judgements about the effectiveness of your teaching, the teaching of your colleagues, or your school.

Your responses will be completely anonymous to the final report, so we hope you will feel free to answer each question candidly. Please mark or write your response to each statement or question directly on the questionnaire. Thank you for your time and cooperation.

Sincerely,

Gregory D. Leopold

Gregory D. Leopold
R & E Specialist

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INSTRUCTIONS: For the items in questions one and two, please CIRCLE THE ONE NUMERAL on the scale that best describes your response.

1. Please rate the degree to which you feel each of the following ITI project goals was met.

   A. Increase understanding of ITI concepts, processes, and skills.

   Not met — Completely met

   1 2 3 4 5

   B. Provide helpful implementation resources.

   Not met — Completely met

   1 2 3 4 5

   C. Enhance team-building capacity.

   Not met — Completely met

   1 2 3 4 5

   D. Increase teacher empowerment.

   Not met — Completely met

   1 2 3 4 5

   E. Support/assist educational change.

   Not met — Completely met

   1 2 3 4 5

   F. Increase collegial exchange.

   Not met — Completely met

   1 2 3 4 5

1. In what ways have project participant teachers shared what they have learned about ITI with you or others?

2. What resources have you found useful as a result of your school's participation in the ITI project?

3. From your experience with ITI, what do you see as the important factors associated with successful implementation of ITI?

4. Describe any changes in your school that have occurred as a result of your school's participation in the ITI project?

5. What changes, if any, have you seen in students' attitudes and/or performance as a result of their participation in ITI activities?

6. In your opinion, what impact does ITI have on teaching and learning?

Thank you for taking time to complete this questionnaire for AEL.

BEST COPY AVAILABLE

APPENDIX H

SUMMATIVE FOCUS GROUP INTERVIEW GUIDE

FOCUS GROUP INTERVIEW SCHEDULE

Hello! Welcome to another discussion about the ITI project conducted in your school over the past two years. We are going to talk today about some of the issues participants have identified during their participation in the ITI project. The purpose of the discussion today is not to make judgements about any individual's or school's performance, but rather, gain specific insights into the ITI implementation process to share with others who may embark on a similar endeavor. The questions have been developed, in part, from the responses to the teacher questionnaire recently completed.

Let me take a moment to review some ground rules. There are no experts here. Everyone's thoughts and opinions are of equal importance. It is my job as facilitator to make sure everyone has an opportunity to provide their input. No one should judge anyone's comments as right or wrong. We will be recording our discussion today so that I will be sure to capture all the discussion accurately. Your comments will remain anonymous, so please speak candidly about your experience.

With those guidelines in mind, let's begin.

Warm-up: If you could change one thing about the ITI project, what would it be?

1) An important component of the ITI project is teacher participation in action research. Responses from teachers seemed to indicate that action research meant different things to different people. Given what action research means to you, what do you see as the value of action research as part of your professional growth and development. (PROBE: How has the action research component of the ITI project changed the ways in which you solicit feedback on your teaching?)

2) A goal of the ITI project is to support educational change. Most teachers rated the project highly on meeting this goal. In what ways did the project support or initiate change in your classroom? (PROBE: In what ways have the changes or reinforcements affected your students performance?)

3) One major impediment to implementing ITI was reported as differences in attitudes and commitment toward ITI implementation (for example "non-believers; split faculty; strong beliefs and opinions of some; no vision;"). How do those differences effect implementation of ITI in your school and how was resolution of those differences addressed? (PROBE: What core beliefs do teachers need to successfully implement ITI?)

4) An often reported factor associated with ITI implementation was "active support from administrators". What specific things can central office administrators do to show support for ITI? What specific things can building administrators do to show support for ITI?

5) Another implementation factor seen as an impediment is time. When "more time" is reported, it is unclear how more time would be used. Please detail how you see more time being of benefit to ITI implementation.

6) How have students been involved in the planning and development of ITI activities?

7) Many participants suggested that students seemed more interested, involved, and enthusiastic when participating in ITI activities. As you reflect on your ITI units and activities, Why do you think that is true? (PROBE for examples and success stories).

8) Are there other findings about ITI implementation at your school that you'd like to tell us about?

APPENDIX I

INDIVIDUAL INTERVIEW GUIDE

ADMINISTRATOR INTERVIEW SCHEDULE

INTRODUCTION

I want to thank you for taking the time to answer questions to help us evaluate the ITI project. While we were able to convene the teachers for focus group interviews, that same technique was not feasible for gathering the thoughts of administrators about the project. Instead, we've chosen to use this personal interview strategy. We'd like to record our conversation today so that I can produce accurate quotes. Please remember that your responses will remain anonymous and not identified by individual. All data will be summarized by site as well as across the project. Would you mind if I turned on the recorder now.

Most of the questions have been formulated as a result of the responses to both the teacher and administrator questionnaires that have already been completed as part of the project evaluation. We hope to gather more detailed and specific information during our discussion today not only to help in our evaluation efforts but to inform others who may be considering the use ITI.

1. One major impediment to implementing ITI was reported by teachers and administrators as differences in attitudes and commitment toward ITI implementation. Please describe an example of such an instance in your school during the project and what methods did you use to resolve the differences?

2. Based on your experience with ITI, what recommendations would you make to other principals about selecting and organizing instructional teams?

3. Please share some of the specific ways you have facilitated and supported ITI work in your school.

4. Time is an often mentioned impediment to ITI implementation. Are there specific things administrators can do to:
1) create additional time for ITI work?

2) facilitate constructive use of that time?

5. Administrators recommended to other principals who might be considering implementation of ITI to "sell it to staff and community first". What suggestions might you have on how to "sell ITI" to staff and community.

6. Many teachers and administrators reported observing changes in students while participating in ITI units such as increased participation and attendance, increased enthusiasm, and willingness to work with and help others. What is it about ITI that you think leads to those student behaviors?

7. All administrators indicated that they plan to "expand and enhance" ITI in their school. How can AEL assist your continued progress with ITI?

EXTRA QUESTIONS IF TIME PERMITS

What core beliefs do teachers need to successfully implement ITI?

What core beliefs do administrators need to successfully implement ITI?

Some administrators indicated that one thing they would have done differently if they had the chance was to better recognize or reward the ITI teams. What recommendations would you make to other administrators as to rewarding or recognizing ITI teams?

APPENDIX J

FORMATIVE EVALUATION

APPENDIX J

FORMATIVE EVALUATION

The project director conducted informal formative evaluation throughout year one of the project. In addition, staff conducted a focus group interview with each school team during the second summer institute, and an AEL Client Survey was administered in the fall of 1993.

Focus Group Interview

During the summer between the first and second years of the project, staff conducted the second summer institute to provide the teams with further resources and professional development opportunities related to the project's work. The institute, "Solving the ITI Puzzle," was held at Mountain Lake, Virginia, July 19-22, 1993.

As part of this institute, each team participated in a focus group interview to provide information about its experiences during the first year of the project. The focus group interview was guided by a series of six questions developed by the project director. A summary of responses to these questions across teams is provided below.

1. What three words/phrases best describe your feelings about interdisciplinary teamed instruction?

Participants offered several words and phrases in response to this question. While a statement may have been voiced only once, informal observation indicated that often there was general agreement among participants. The comment made most frequently (by six respondents) was "challenging." Three (each) of the other respondents described their feelings as "frustrating," "overwhelming," and "refreshing." Other descriptions shared by at least one respondent included "exciting," "rewarding," "effective," "interesting," "time-consuming," and

"hard work." Individuals also indicated that ITI required them to work as a team; they viewed the last year as a learning experience; and ITI required a great deal of cooperation and flexibility. Others noted that it "was nice having a partner to help share ideas," and that they observed an increase in student interest.

2. What are some of the factors that seem to facilitate the use of ITI? (PROBE: When did ITI work best at your school this year? What kinds of supports, resources, technical assistance were most helpful for your team this year?)

Faculty members, resources, and time were three factors that seemed to facilitate the use of ITI. Respondents indicated that faculty trust, support, cooperation, willingness, and expertise were all critical to successful implementation of ITI. If any of those components were missing, effective implementation was difficult, if not impossible.

Respondents indicated the relationships that already existed between teachers, between teachers and administrators, and the school and community supported ITI implementation. Networking between teachers in the school, as well as with professionals in other settings, also seemed useful. Participants said that individual teachers' knowledge of their subject areas was very important and they described fellow staff as "great resources."

It was clear that time to plan, implement, and reflect on ITI was essential to its success. Common planning time, block scheduling, release time for planning and training were described as facilitative factors. Respondents indicated they often felt "overwhelmed" with the task of developing the ITI program in the midst of their other responsibilities.

Successful implementation of ITI also required a great many resources. These included support from division and local administration, common work areas, community businesses, and

local funding agencies. Equally important were the material resources about ITI provided by various groups. However, several respondents noted that they would still like to see more explanatory material about ITI.

Most respondents indicated that ITI worked well throughout the year, except at the end of the school year when many "wrap-up" activities take place.

3. What are some factors that hinder the use of ITI? (PROBE: What obstacles did your team face? What are some strategies you developed to overcome them?)

Faculty members, resources, and time. As one might expect, those factors that participants labelled essential for successful implementation were also described as hindrances when absent. The most frequently noted hindrance, however, was lack of time, especially lack of common planning time.

Participants described other factors in response to this question, such as: external requirements (state and local), resistance to a new paradigm, class size, lack of familiarity with ITI and/or curriculum development, and inadequate or difficult measures of achievement.

4. What changes, if any, have you seen in the attitudes of students as a result of the use of ITI? (PROBE: Are there any student success stories?)

In general, respondents indicated that students' attitudes toward ITI were positive, although they offered a variety of responses to this question. Many respondents said that students were usually very enthusiastic about ITI, especially during schoolwide activities. For example, students liked being able to submit one assignment for credit in several classes.

Some respondents indicated that special education students were more involved in the ITI units, while others indicated those students experienced frustration with the open-endedness of some of the ITI activities. A few respondents indicated that high school students still felt they were in middle school as a result of having combined classes. Several teachers reported that

some of the "stronger students" preferred to work on their own. Other respondents indicated that they felt students who were typically unmotivated or disinterested seemed to exhibit better participation in the ITI activities.

One interesting theme that arose from discussion concerning this question was the attitude of parents. Many respondents indicated they thought parents were more interested and knowledgeable about school activities as a result of ITI. Teachers offered several stories of students "correcting" their parents at home as a result of ITI lessons and units.

5. What are some personal outcomes of teamwork for you? (PROBE: How has your role as teacher or administrator changed? What do you do now as a result of ITI that you didn't do previously?)

Respondents described a number of personal outcomes resulting from their teamwork/involvement with ITI. While some were negative (more stress, time constraints), many were positive. The following quotes provide illustrative examples of such comments.

"I don't feel like I'm stuck doing the same thing for 20 years," noted one respondent. Others said, "It's one of the most challenging things I've ever had to deal with," and "It keeps me from feeling isolated in my classroom." Several respondents indicated that their personal experiences were exciting, challenging, and allowed them to be creative.

Many individuals commented that ITI helped them "learn new things" (content as well as teaching strategies, information about their colleagues). The opportunity to share with colleagues and learn from one another was very much appreciated by a number of the participants. Teachers said they felt "empowered" by the use of ITI. Others indicated they felt students were more enthusiastic about being involved in the activities.

A few teachers reported negative outcomes. One individual indicated she "did not feel comfortable as a facilitator," that she preferred to "be a teacher." Another said she felt a great deal of frustration because of the lack of time and money, as well as policy, that made ITI implementation difficult. One participant stated that the process had taken "an emotional toll" on her.

6. If there were one thing you could change about how your team works, what would it be and why?

The most frequent response to this question was "more time." Common planning time seemed to be a big issue in those settings that did not have such support. Several respondents indicated they would like to be free of the "necessary evils" (state and local requirements).

Another major theme was that of commitment from every team member. Many thought that having unmotivated or disinterested team members truly hampered the process.

Several participants commented that they would like to experience "less turmoil" and "have fun" with the experience. One respondent said he would like to visit a school that was "one step ahead of us in ITI." Others indicated they would like to have more "technical" materials related to ITI.

Summary. Focus group interview data reveal that the experiences of participants during the first year of the project were trying at times. Time constraints and financial support often made the process difficult. However, most respondents described ITI and the teaming process as a very worthwhile endeavor. Many saw ITI as the wave of the future and were glad to be on the leading edge. Participants reported increased enthusiasm in many students, enhanced communication between students and parents, and greater collegial exchange among faculty as a result of ITI.

AEL Client Survey

Rating scale. In October 1993, project participants received by mail an AEL Client Survey that was part of AEL's external evaluation conducted by Western Michigan University. ITI participants were asked to indicate on a scale of 1 (strongly disagree) to 4 (strongly agree) the extent to which they agreed or disagreed with 14 statements describing the ITI project. The mean responses to those fourteen items are presented in the table below.

Open-ended questions. Participants also were asked to respond to five open-ended questions concerning their perceptions of the ITI project. A summary of those responses follows.

1. *What are the benefits you and/or your school have received from participating in the ITI project?*

   The most frequent response was "teachers working together." Another frequent response described teachers moving from a subject-focused curriculum to a more integrated one. Respondents also reported increased knowledge of ITI and alternative instructional and assessment strategies.

2. *Has the project changed the way you work with colleagues and students?*

   Respondents indicated their interaction with colleagues had increased. Several mentioned that they were actively seeking counsel from colleagues. Some said that students appear to sense a new enthusiasm among the teachers who are collaborating.

3. *What do you consider the major strengths of the ITI project?*

   Two most frequently noted strengths were the materials made available and the team building that was occurring as a result of the project. Several respondents indicated that their participation caused them to be more thoughtful and reflective about their teaching.

Mean Ratings of AEL Client Survey

	N	Mean	SD
1. The ITI summer institutes conducted by AEL staff and consultants were of high quality.	20	3.70	.47
2. AEL staff and consultants structured summer institutes to encourage active involvement of participants.	20	3.85	.37
3. Activities and materials utilized in summer institutes facilitated development of new teaching skills.	20	3.55	.51
4. Summer institute activities facilitated team building.	20	3.65	.49
5. Activities and materials used at the summer institutes enhanced my knowledge of interdisciplinary curriculum frameworks.	20	3.50	.51
6. My school team has used information/skills gained from summer institutes in planning instructional units/activities.	20	3.45	.51
7. ITI on-site workshops at my school extended my understanding of interdisciplinary teamed instruction concepts.	20	3.35	.49
8. ITI on-site workshops at my school promoted reflective practice.	20	3.30	.57
9. AEL staff encouraged team members' involvement in developing the agenda for on-site workshops.	20	3.40	.75
10. My school team has used information/skills gained from on-site workshops in planning instructional units/activities.	20	3.50	.51
11. Team members have implemented educational practices adapted from ideas obtained through AEL staff and consultants.	20	3.40	.50
12. Team members have shared information on ITI provided by AEL staff with other educators, students, parents, or community members.	20	3.30	.66
13. AEL staff provided services/products that have enhanced team members' professional attitudes and behaviors.	20	3.35	.67
14. During the project, AEL staff were sensitive to the team's needs.	20	3.45	.69

4. *What advice would you give the faculty of a school that is considering implementation of ITI?*

   While two respondents suggested not embarking on the ITI journey, most respondents suggested moving slowly toward implementation and allowing a great deal of time for adequate planning. Several participants also suggested that clear administrative support was necessary and that commitment from all involved was essential.

Summary. Participants rated the first summer institute very highly. Teachers indicated their interaction and collaboration had increased during the first year of the project. Participants described the materials made available to them and the team building opportunities as strengths of the project. Respondents also indicated that adequate planning time and administrative support were necessary for successful implementation of ITI.

APPENDIX K

COMPLETED EVALUATION STANDARD CHECKLIST

Citation Form

The Program Evaluation Standards (1994, Sage) guided the development of this (check one):

____ request for evaluation plan/design/proposal
____ evaluation plan/design/proposal
____ evaluation contract
____ evaluation report
_x_ other: Evaluation Activities of ITI Project

To interpret the information provided on this form, the reader needs to refer to the full text of the standards as they appear in Joint Committee on Standards for Educational Evaluation, *The Program Evaluation Standards* (1994), Thousand Oaks, CA, Sage.

The *Standards* were consulted and used as indicated in the table below (check as appropriate):

Descriptor		The Standard was deemed applicable and to the extent feasible was taken into account.	The Standard was deemed applicable but could not be taken into account.	The Standard was not deemed applicable.	Exception was taken to the Standard.
U1	Stakeholder Identification	x			
U2	Evaluator Credibility	x			
U3	Information Scope and Selection	x			
U4	Values Identification	x			
U5	Report Clarity	x			
U6	Report Timeliness and Dissemination	x			
U7	Evaluation Impact	x			
F1	Practical Procedures	x			
F2	Political Viability			x	
F3	Cost Effectiveness	x			
P1	Service Orientation	x			
P2	Formal Agreements	x			
P3	Rights of Human Subjects	x			
P4	Human Interactions	x			
P5	Complete and Fair Assessment	x			
P6	Disclosure of Findings	x			
P7	Conflict of Interest	x			
P8	Fiscal Responsibility	x			
A1	Program Documentation	x			
A2	Context Analysis	x			
A3	Described Purposes and Procedures	x			
A4	Defensible Information Sources	x			
A5	Valid Information	x			
A6	Reliable Information	x			
A7	Systematic Information	x			
A8	Analysis of Quantitative Information	x			
A9	Analysis of Qualitative Information	x			
A10	Justified Conclusions	x			
A11	Impartial Reporting	x			
A12	Metaevaluation	x			

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